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A Program of FIRE Prevention IN SCHOOLS

MANUAL for TEACHERS

COMMONWEALTH of PENNSYLVANIA
DEPARTMENT of PUBLIC INSTRUCTION
HARRISBURG

BULLETIN 399

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A PROGRAM OF FIRE PREVENTION IN SCHOOLS

MANUAL FOR TEACHERS

BULLETIN 399
1951

PREPARED BY DIRECTION OF THE SUPERINTENDENT
OF PUBLIC INSTRUCTION IN CONSULTATION WITH
THE PENNSYLVANIA STATE POLICE

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DR. FRANCIS B. HAAS, Superintendent
Pennsylvania Department of Public Instruction

COL. C. M. WILHELM, Commissioner
Pennsylvania State Police

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC INSTRUCTION
HARRISBURG

FOREWORD

THIS BULLETIN is issued to fulfill the provisions of Act of the General Assembly No. 268 approved May 9, 1949, P. L. 965, now Section 1518 of the 1949 School Laws of Pennsylvania.

In accordance with the Act, this bulletin is a book of instruction for use of teachers of students of all grades in the public and private schools, with regard to the dangers of fire and the prevention of fire waste. It is published at the expense of the State under the direction of the Superintendent of Public Instruction in consultation with the Pennsylvania State Police.

It is hoped that the use of this material will facilitate instruction in fire prevention in schools, a special aspect of education designed to reduce the enormous loss of lives and property due to fire.

The bulletin was prepared under the general direction of Paul L. Cressman, Director, Bureau of Instruction, in consultation with W. F. Traeger, Captain, Fire Marshal, Bureau of Fire Protection, Pennsylvania State Police.

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December 1951

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Introduction

THE *Scope* OF THIS BULLETIN

A PROGRAM OF FIRE PREVENTION in Schools must be concerned with the dangers of fire and the prevention of fire waste. To be effective it must include instruction in all phases of fire dangers, fire protection, fire prevention, and firesafety in home, school, and community. The intent of the bulletin is to suggest procedures to accomplish this purpose.

Although the bulletin is designed as a manual for teachers, there has been included the responsibility of the administrator, or those responsible for the administration, for the fire prevention program.

The suggested procedures and activities are designed primarily for elementary and secondary schools; however, all types of schools will be able to use this bulletin in setting up programs of fire prevention in accordance with the characteristics and level of the particular school concerned.

Since schools differ in philosophies of teaching, in resources, and in character, the bulletin is designed as a resource or as a guide in setting up fire prevention programs to meet the needs of many different kinds of schools.

FROM *School Laws* OF PENNA.

[1949]

Section 1518. Textbooks and Instruction on Fire Dangers and Prevention Drills

(a) It shall be the duty of the Superintendent of Public Instruction, in consultation with the Pennsylvania State Police, to prepare books of instruction for use of teachers of students of all grades in the public and private schools with regard to the dangers of fire and the prevention of fire waste. Such books of instruction shall be published at the expense of the State, under the direction of the Superintendent of Public Instruction, and shall be distributed in sufficient quantities for the use of the teachers in schools as herein provided. The curriculum of all schools shall include some regular and continuous study of such subjects during the entire school year. (Amended May 9, 1949, P. L. 956, and by Act 395, Sept. 28, 1951.)

(b) It shall be the duty of the Superintendent of Public Instruction, and of the principals or other persons in charge of the various schools, to provide for the instruction and training of pupils of such schools by means of drills, so that they may in sudden emergencies be able to leave the school buildings in the shortest possible time without confusion or panic. Such drills shall be held at least once a month when the schools are in session.

THE *Necessity* FOR A PROGRAM OF FIRE *Prevention* IN PUBLIC AND PRIVATE SCHOOLS

THE NATION'S ENORMOUS FIRE WASTE[1]

Fire kills about 11,000 persons each year and more than twice that number are severely burned or disfigured for life.

Every day there are 700 home fires . . . 28 deaths by fire . . . 130 store fires . . . 100 factory fires . . . 7 church fires . . . 7 school fires and 3 hospital fires.

Most of the people killed in these fires are women and children.

Fires kill more than 10 children every day.

Forty fires occur every day because electric pressing irons are left in circuit.

Out of the approximate 650,000 fires which attack buildings, 87,000 fires costing $51,500,000 are caused by careless smoking. Smoking in bed accounts for the largest loss of life.

Each year approximately 20,800 fires costing $8,300,000 are caused by children playing with matches. More than 75 fire tragedies a day are the result of these fires.

There are about 2,400 school fires each year or about seven a day.

Fires in automobiles account for about 11 per cent of fire department calls.

The farmer's annual loss from fire would build about 50,000 outbuildings at $2,000 each and these structures, placed end to end, would form an unbroken wall 500 miles in length. The replacement of farm buildings destroyed by fire alone requires the cutting of 5,000 acres of U. S. forests each year.

Ten lives are lost in farm fires every day.

There are 656,722,000 acres of forest land in the United States, yet fire lays waste 30,000,000 acres annually. The average forest area burned over annually is equal to the land area of the New England States.

The annual fire bill for the nation is nearly three quarters of a billion dollars, the highest in the world.

[1] *Facts About Fire,* 1949. National Fire Protection Association, 60 Batterymarch St., Boston 10.

Estimates of the National Board of Fire Underwriters

Year	Aggregate Property Loss	Year	Aggregate Property Loss
1930	$502,000,000	1940	$286,000,000
1931	452,000,000	1941	304,000,000
1932	401,000,000	1942	314,000,000
1933	271,000,000	1943	373,000,000
1934	271,000,000	1944	437,000,000
1935	235,000,000	1945	484,000,000
1936	267,000,000	1946	554,000,000
1937	255,000,000	1947	648,000,000
1938	258,000,000	1948	715,000,000
1939	275,000,000	1949	652,000,000

Approximately 1,800,000 elementary and secondary school pupils in Pennsylvania have a major interest in the reversal of the fire loss trend. They stand to lose even more than our adult population.

Fire prevention education will contribute to good community living for the pupil as he learns to participate in local affairs.

The learner will strengthen his sense of security and happiness as he contributes to greater home and school safety.

Fire prevention education will contribute to the growth and development of the pupil as he acquires habits, skills, and attitudes by exploring firesafety problems.

The pupil needs an opportunity to make contribution, to do critical thinking, to criticize constructively, and to work with others. Fire prevention will enable him to help to conserve the resources of the nation.

SECTION ONE

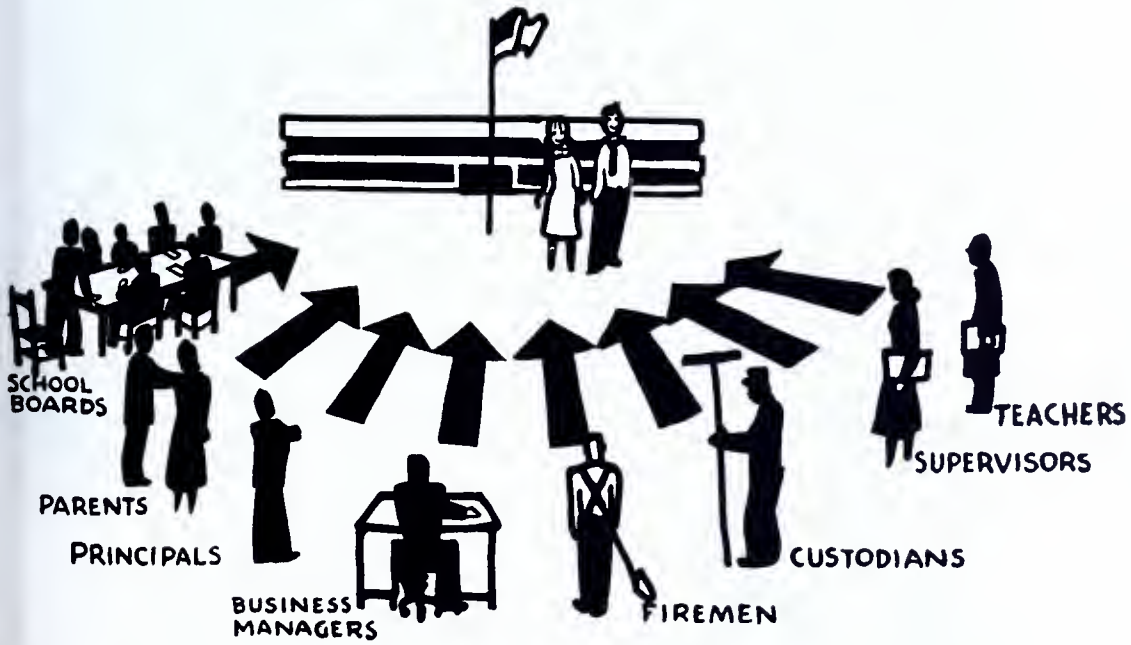
ADMINISTRATIVE RESPONSIBILITIES FOR THE FIRE PREVENTION PROGRAM OF THE SCHOOL

General Duties . . .

ALL WHO HAVE accepted school stewardship in any degree are obligated by that degree to establish and maintain firesafety conditions within their area or field of responsibility.

Under our program of compulsory education, parents are justified in expecting public and nonpublic schools to provide a maximum degree of protection for their children.

Parents share a part of the responsibility for maintaining safe conditions, but the responsibility falls principally on those who accept positions of trust in the school system. Administrators or officials of public, private, or parochial schools, boards of directors or boards of control, business managers, building engineers, janitors, supervisors, principals, and teachers must accept a heavy share of responsibility for fire protection and fire waste.



Emergency preparedness plans for schools must be based upon the axiom that fire, panic, and confusion "can happen here," and that these inevitable disasters can only be met successfully by careful preplanning, which will include, in addition to the inauguration of such structural improvements as are necessary to remove building and occupational hazards, the creation of simple emergency organizations within the personnel, and the instruction of that personnel in what they should do when the emergency arises.

Fires in schools do happen and will continue to occur, as the records prove. Over a period of years there has been an average of seven school fires every day, month after month. Enough of the more serious of these fires have occurred during school hours to emphasize the imperative need to prepare and train for meeting emergencies.

A program of fire prevention in schools includes two separate phases:

1. Protection of persons using the school buildings
2. Protection against property loss

None will dispute the greater importance of safety to life over loss of property. For this reason, the school administrator's program for fire prevention should include the following considerations, in the order of their importance:

1. Exercise all precautions necessary to reduce the possibility of fire.
2. Insure, in the event of fire, that chance for safe escape is a certainty.
3. Provide, where practicable, for extinguishment of the fire without hazard to the student body or teaching staff.

It is the purpose of this section of the Manual to guide the administrators, the nonteaching personnel, and the teacher through practical suggestion and information, in the organization and administration of a functional fire prevention education program so that the life of no school child shall be sacrificed by fire because of ignorance or neglect.

curriculum IMPLICATIONS

By Pennsylvania's legislative enactment . . . "the curriculum of all schools shall include some regular and continuous study of such subjects (the dangers of fire and the prevention of fire waste) during the entire school year." (See Introduction.)

The development of a coordinated program in fire prevention in the school does not require the introduction of new subject matter courses into the curriculum. It does require, however, that the curriculum include *all* educational materials and activities which will help the pupil to live the most efficient and wholesome life possible. Instruction in fire prevention and fire protection should constitute an important phase of the total pattern of experiences that go to make up the formal educational process.

The preparation of special teachers in fire prevention is not only unnecessary but undesirable. The education of pupils for maximum efficiency in community life is largely dependent upon teacher ingenuity, initiative, and resourcefulness. Most efficient teachers will be able to integrate school safety activities with their subject areas and with the activities of the community.

The fire prevention phase of the school curriculum will be concerned fundamentally with *the development of desirable attitudes* regarding fire prevention and fire waste. This implies the building of knowledge and the development of habits and skills that may be utilized in the removal of circumstances under which uncontrolled and unobserved fires might occur.

It is the duty of the school administrator, in connection with his duties in relation to instruction, to see that source material dealing with fire prevention education be gathered and made available to pupils and teachers at all times. The accumulating and filing of material such as pamphlets, books, periodicals, and film lists, may well be delegated to a school librarian or to other members of the staff. Fire prevention education material is readily obtainable in abundance, much of it free of cost.

First TEACH TEACHERS

It is the responsibility of the school administrator to see that teachers are acquainted with principles of fire prevention. They should be taught how to use fire extinguishers and other firesafety devices. They should know the firesafety rules, have a broad knowledge of firesafety laws, and know what to do in emergencies. They should know how to teach fire prevention and how to procure resource materials for this purpose.

This kind of instruction could be made a part of teacher meetings as many times as necessary during every school term.

THE SCHOOL FIRE *Drill*

It is the opinion of most fire prevention authorities that there is much to be desired in the way of improving the school fire drill. Although almost every school in America goes through the motions of having periodic fire exit drills, it is common knowledge that these drills generally do not measure up to any acceptable standard. Some are inadequate and some are actually dangerous.

Not only is the fire exit drill definitely necessary but it should be brought to the attention of students and teachers that it is also an instructional device designed to insure safe egression of pupils and personnel from the school building in the event of fire.

Administratively speaking, there are two types of fire drills—the autocratic type which is dominated by principals and teachers, and the democratic type which is characterized by maximum pupil participation. In the autocratic type the drills are routine in spirit; the democratic type is more dynamic and purposeful.

FACTS TO CONSIDER IN PLANNING EXIT DRILLS

1. The fire alarm signal (bells or horns) should be clearly audible in all parts of the building. The pitch of sound must be unlike any other routine bell or signal so that when sounded its meaning is unmistakably clear. Under no circumstances should the fire alarm signal be used for any other purpose than to empty the building of its human contents. It would be a dangerous practice to use the fire alarm signal for such purposes as changing classes and dismissing the school.
2. The responsibility for sounding the fire alarm signal for the fire exit drill lies solely with the principal or other person in charge of the school. Therefore, when a fire exit drill is desired by a local Fire Chief, he should first contact such responsible school official before the fire alarm signal is sounded. It is suggested that the closest cooperation in this respect be maintained between the school and the fire services.
3. The primary purpose of drills is the training of children.
4. Drills should be more frequent for primary and younger children than for the older students.
5. More drills should be held at the beginning of the term than at the end.
6. The safety of children should be the first consideration of the principal and teachers who are serving in place of the parent.
7. The type of drill is determined by:
   a. Type of building
   b. Number and location of exits
   c. Number of pupils
   d. Age of pupils
   e. Number of teachers
8. At various times, during the fire exit drill, obstructions should be set up in the usual passageways so that pupils will know how to take alternate routes out of the building. The obstructions can be rotated from place to place so that each room will be acquainted with one or more means of egress from the building. If alternate routes are planned by way of fire escapes, so much the better. This practice will help to avoid panic in case of actual fire.
9. Orderly, quiet, and purposeful exit is the primary objective of the drill. Speed of exit, while desirable, is of secondary importance.
10. Accurate records of all drills should be kept on file. Among other things the record should include:
    a. Date
    b. Time
    c. Enrollment by room
    d. Time required for emptying building
    e. Type of drill—obstructed or unobstructed

11. Fire drill instruction should be a part of the homeroom guidance program in the secondary school; a part of classroom instruction in the elementary school.
12. Fire fighting should be made secondary to life safety.
13. Teachers, custodians, and other employes should be assigned definite responsibilities and instructed in their functions and duties.
14. *It is suggested that in buildings where exterior fire escapes are used, children be frequently dismissed by way of the fire escapes (for play periods, noon hour and afternoon dismissals), weather conditions permitting, so that they may feel more at ease in case of an actual emergency.*
15. Arrows indicating the direction of exits have proved useful.
16. The fire drill is basically a classroom activity. Teachers should be responsible for the training of the various groups that make up their daily schedule.
17. Corridor rules can be cooperatively adopted to insure that teachers and room marshals lead and follow each class. Example: Teachers on one side of the corridor lead, teachers on the opposite side follow. Odd-numbered classes lead even-numbered classes going the same direction.

18. Plans for aiding the physically handicapped should be a part of each classroom routine. This is especially important in the elementary school and where high outside fire escapes are used.
19. Teachers carry class attendance records outdoors. Students should not be permitted to carry books or excess clothing.
20. Shop students stop work, turn off motors, torches, forges, and other equipment.
21. Custodians turn off all ventilating fans and other drafts, and stand by to man the fire extinguishing apparatus or to help direct the fire department as to the location of the fire.
22. Classes line up at safe distance from the building in double file and face the building. Under no circumstances should teachers and pupils return to the building until a return signal is given.
23. Fire drill instructions should be a part of the student handbook which is common in many secondary schools.
24. All windows and doors of the classroom should be closed by room marshals.
25. Students in lavatories join nearest line of exit.
26. Students, scantily dressed, in swimming pools and gymnasiums, line up in double file at exit door and await information as to whether a fire has actually occurred.
27. Student officers man all doors.

28. At least one drill during each term should be called:
    a. When pupils are in the auditorium
    b. When pupils are in the lunchroom
    c. During change of classes
29. The first fire drill should be announced to the teachers in advance and staged as a slow motion rehearsal.
30. Children of the kindergarten and first grade should have special training.

In planning for the most effective student participation in fire exit drills it has been found that the range of student control is very broad, from teacher control in the elementary grades to wide student responsibility in high school.

The following plans are mentioned as points of departure for administrators and teachers who may wish to adjust them to their immediate situation.

THE *student* ELECTED FIRE SQUAD PLAN

This squad would be composed of the following student officers:

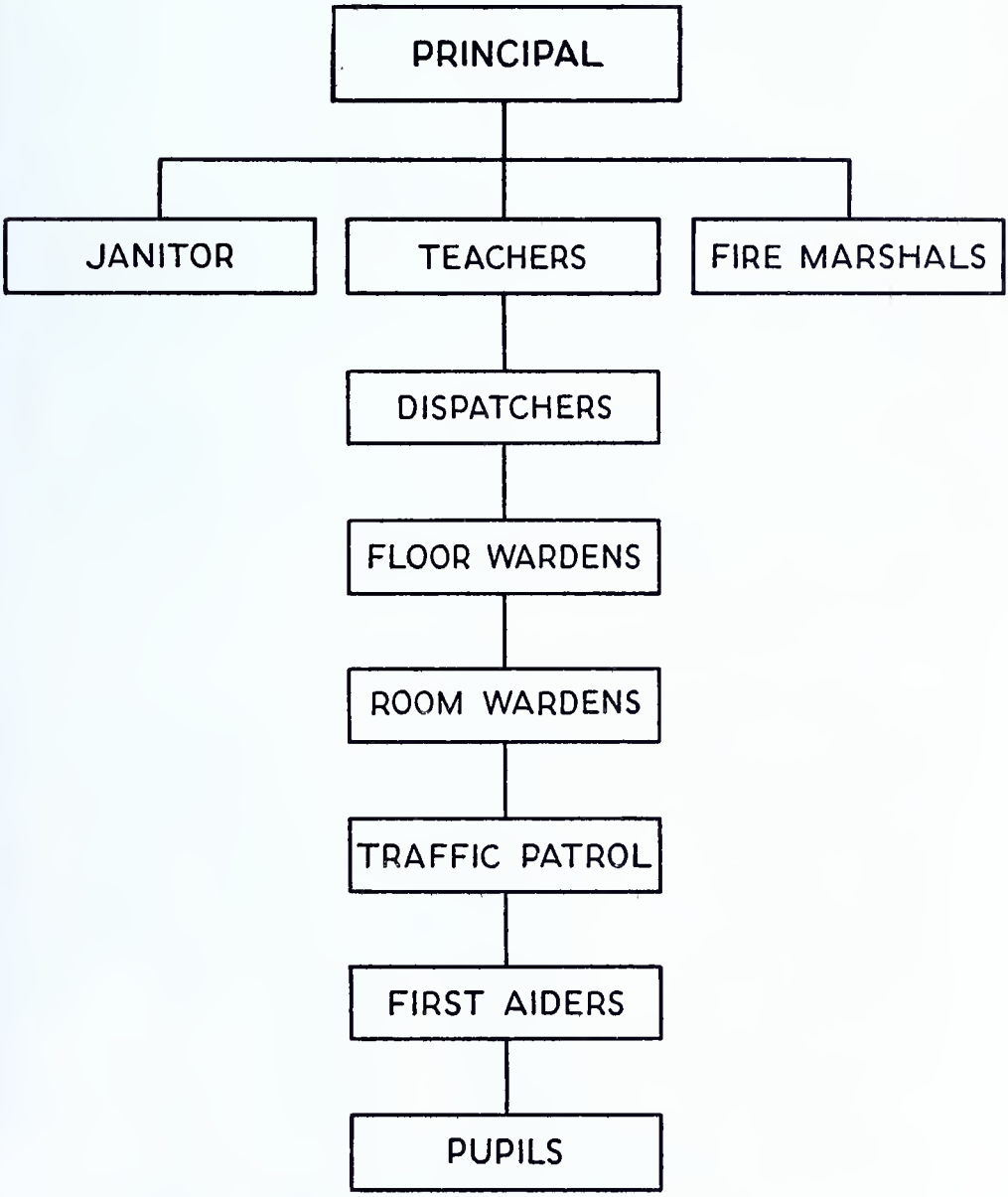
1. **Fire Chief**—to assist principal in calling and planning drills; to check duties of fire squad members; to aid in fire prevention programs; to plan and act as presiding officer at fire squad meeting.
2. **Assistant Fire Chief**—to assist the chief and to replace him during his absence.
3. **Captains**—to have charge of various sections of the building (one captain for each floor has proved efficient); to notify the chief when sections are free of occupants; to supervise room marshals and inspectors.
4. **Room Marshals**—(two for each room)
    a. No. 1 Marshal leads the class to the outside.
    b. No. 2 Marshal closes windows, turns off lights, sees that the room is evacuated, and closes the door. He follows the class to help keep the formation intact.

A *cooperative* PLAN

FOR STUDENTS, TEACHERS, AND CUSTODIAL STAFF UNDER THE SUPERVISION OF THE PRINCIPAL AS THE OFFICER IN CHARGE

1. **Duties of the Principal**
   - To be responsible for the safety of pupils and personnel
   - To prepare for and execute drills
   - To notify the fire department promptly in the event of fire
   - To have an up-to-the minute roster of all personnel, including absentees
   - To check with floor wardens as to the security of each floor
   - To keep accurate fire drill records and send copy to the local fire chief
   - To assign fire drill officers
2. **Duties of Teachers**
   - To be responsible for the evacuation of their class
   - To appoint or have elected their dispatcher, room wardens, first aiders, and traffic patrol
   - To see that their room personnel are at their posts
   - To have an accurate record of their class attendance
   - To call roll outside the building
   - To learn how to use hand fire extinguishers and other extinguishing equipment
3. **Duties of the Dispatcher**
   - To act as messenger for the teacher and principal
   - To maintain communication among principal, teachers, and other officers
   - To sound alarms and report to principal for instructions
4. **Duties of Floor Wardens**
   - To direct the evacuation of their floor
   - To await reports from room wardens
   - To await arrival of principal and report condition of their floor
   - To report to their own group via the proper exit
5. **Duties of Room Wardens** (one to a room)
   - To see that cloakrooms, storerooms, and lavatories are clear
   - To be the last to leave the room
   - To report to floor warden
   - To report to his class when ordered by the floor warden
6. **Duties of Traffic Patrol**
   - To take place at assigned exit
   - To open doors and remove any obstruction
   - To check on stragglers from their exit

A COOPERATIVE PLAN



7. **Duties of First Aiders** (two assigned for each crippled or sick pupil in the class)
   Primary duty is to be responsible for the safe evacuation of the physically handicapped

8. **Duties of the Janitor**
   To maintain the premises in a safe condition
   To practice good housekeeping
   To keep principal informed as to general plant conditions
   To turn off all motors, ventilating fans, etc.
   To stand by to inform the fire department as to the best means of entry
   To have charge of the first-aid equipment

9. **Duties of the Fire Marshals**
   To supervise specific areas for the principal
   To check daily assigned area for housekeeping conditions
   To keep check on the condition of doors and panic bars
   To report hazardous conditions to the principal
   To make weekly reports (on designed forms) to the principal

10. **Duties of Pupils**
    To remain calm; not to run, push, or try to pass others when making their exit; and to have confidence in the teachers

In these plans, as in all others, one of the most troublesome problems is vacancies resulting from absences. The only practical solution is the training of alternates to compensate for such vacancies.

FIRE PREVENTION SUGGESTIONS TO THE *custodial* STAFF

1. The custodial staff should have a thorough understanding of the emergency lighting system
2. Keep an orderly boiler room
3. Maintain a boiler room or custodian's room bulletin board with at least the following information:
   a. Telephone numbers of
      (1) Fire department
      NOTE: The telephone number listed in the directory for the fire department is not always the one to call to report a fire.
      (2) Police department
      (3) Gas and electric company trouble department
      (4) Local ambulance service
      (5) Several local doctors
      (6) Water company
      (7) Principal
   b. Drawing or chart showing the location of
      (1) Street shut-off for gas
      (2) Street shut-off for water
      (3) Sprinkler shut-offs
      (4) Hydrants that are nearby
      (5) Main electric switches
4. Have the following equipment in a convenient place and in good order:
   a. Fifty feet of heavy rope for isolating dangerous areas
   b. Flashlight
   c. Proper fire extinguishing equipment
   d. First-aid kit
   e. Gas meter wrench
5. Be responsible for preventing the storage of gasoline and other volatile liquids indoors
6. Keep snow and other obstructive materials from blocking exit doors
7. Maintain required water level on all boilers
8. Refrain from using oversize fuses. A properly fused electric circuit is much safer
9. Shield all rheostat controls
10. Avoid the accumulation of damaged desks and chairs

Courtesy, Harrisburg Fire Dept. and Harrisburg Public Schools

GOOD PUBLIC RELATIONS ARE NECESSARY FOR ANY SCHOOL PROGRAM

Public relations AND THE FIRE PREVENTION PROGRAM

The necessity for keeping the public informed and sympathetic towards the general school program is recognized by all well-managed school systems. It is suggested that the School Fire Prevention Program be considered an integral part of the total community program. This implies mutual obligations on the part of the school and the community in general. It means keeping the public informed regarding school fire prevention activities and, in turn, the school personnel must be aware of hazardous conditions in the community that may serve as a challenge to the school program.

The following activities have proved useful in interpreting the School Fire Prevention Program to the public:

1. Home inspection campaigns (Use the home inspection blank on pages 92, 93)
2. Poster contests
3. Window displays
4. Junior Fire Patrol activities
5. Essay contests
6. School band fire prevention activities
7. Fire prevention work through the Parent-Teacher Association
8. Distribution of fire prevention pledges (a primary grade activity)
9. School principal as a part of the town's Fire Prevention Committee
10. Campaign for home fire drills

It is important that school administrators, teachers, and local fire department officials have a clear understanding of each other's objectives in terms of fire prevention and protection. Most efficient fire departments, whether they be volunteer or paid, have a public relations officer or committee and are vitally interested in cooperating with the schools in their campaign against fire waste and loss of life. They have much to offer the school program, and the school program, if effective, will in turn be of great help to them.

It is generally agreed that a majority of the false alarms in the larger cities come from children of school age. It is also true that some of the larger cities of the United States, through cooperative school-fire department activities, have reduced their false alarms as much as fifty per cent.

The school principal and teachers should know the local fire department in at least the following capacity:

1. Name and address of chief or captain
2. Material available for the school program
   a. Literature
   b. Inspection blanks
   c. Demonstration material (extinguishers—explosion chamber, etc.)
   d. Speakers or vocational guidance consultants
   e. Breathing apparatus
   f. First-aid materials
   g. Special police service
3. Area covered
4. Financial support (tax supported or not)
5. Special apparatus (water tanks in rural areas, etc.)
6. Alarm system
7. Auxiliary services—ambulance, etc.
8. Training methods

Freedom FROM NEGLIGENCE

An efficient program of fire prevention education requires capable leadership, cooperative effort among administrators, teachers, pupils, and the community in general and entails continual vigilance against destruction and loss of life by fire.

It has been authentically estimated that 80 per cent of the fires that have occurred in the past fifty years could have been prevented. This should be a challenge to our fire prevention education program. If such a percentage of fire waste is preventable, it is obvious that a tremendous amount of carelessness and negligence exists among the general population.

Negligence exists only when one assumes a duty and then disregards that duty. Although common law exempts boards of education in many of the negligences occurring in our school districts, teachers and administrators are held liable for their own negligence. The courts are of the opinion that administrators and teachers are expected to act as a reasonably prudent and careful parent would act in regard to situations involving danger of fire destruction and personal injury. When a reasonably prudent and careful parent, according to court rule, would anticipate danger of an accident, it is negligence to permit circumstances to exist without remedial action.

SELF-INSPECTION BLANK FOR SCHOOLS

Prepared by

THE NATIONAL BOARD OF FIRE UNDERWRITERS

CHICAGO NEW YORK SAN FRANCISCO

Approved and Adopted by

THE NATIONAL ASSOCIATION OF PUBLIC SCHOOL BUSINESS OFFICIALS

Endorsed by the

INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

If precautions are taken to minimize the danger of fire and to provide for safety in case fire occurs, real progress will be made in safeguarding life and protecting property. Intelligent thought and care in practice can eliminate practically all fires within schools.

INSTRUCTIONS

Inspection to be made each month by the custodian and a member of the faculty at which inspection only Items 1 to 20 need be reported. At the quarterly inspection, a member of the fire department should accompany the above inspectors, and the complete blank should be filled out. The report of each inspection (monthly and quarterly) is to be filed with the Board of Education or School Commissioners.

Questions are so worded that a negative answer will indicate an unsatisfactory condition.

Date.....

Name of School..... City.....

Class: Elementary..... Junior High..... Senior High.....

Capacity of School?..... Number now enrolled.....

1. Are all exit doors equipped with panic locks?.....Are these locks tested each week to insure ease of operation?..... Do these lock securely so that additional locks, bolts or chains are not necessary?..... Are such additional locks open whenever building is in use?.....
2. Are all outside fire escapes free from obstructions and in good working order? ..... Are they used for fire drills?.....
3. Is all heating equipment, including flues, pipes, and steam lines
   (a) In good serviceable condition and well maintained?.....
   (b) Properly insulated and separated from all combustible material by a safe distance?.....
4. Is coal pile inspected periodically for evidences of heating?.....
5. Are ashes placed in *metal* containers used for that purpose *only?*.....
6. Is remote control provided whereby oil supply line may be shut off in emergency?.....
7. Where is outside shut-off on gas supply line?.....
   .....
8. Check any of the following locations where there are accumulations of waste paper, rubbish, old furniture, stage scenery, etc., and explain under remarks: attic, basement, furnace room, stage, dressing rooms in connection with stage, other locations.....
9. Is the space beneath stairs free from accumulations or storage of any material? .....
10. What material or preparation is used for cleaning or polishing floors?..... ..... Quantity on hand?..... Where stored?.....
11. Are approved metal cans, with self-closing covers or lids, used for the storage of *all* oily waste, polishing cloths, etc.?.....
12. Are approved metal containers with vapor-tight covers used for all kerosene, gasoline, etc., on the premises?..... Why are such hazardous materials kept on the premises?.....
13. Are premises free from defective electrical wiring or equipment?..... (If answer is *No,* explain under Remarks.)
14. Are only approved extension or portable cords used?.....
15. Are all fuses on lighting or small appliance circuits of 15 amperes or less capacity?.....
16. Are electric pressing irons equipped with automatic heat control or signal and provided with metal stand?.....
17. Are sufficient fire extinguishers provided on each floor so that not over 100 feet travel is required to reach the nearest unit?..... In manual training shops and on stage, 50 feet?.....
18. Have chemical extinguishers been recharged within a year?..... Is date of recharge shown on tag attached to extinguisher?.....

19. Is building equipped with standpipe and hose having nozzle attached?.....
Is hose in good serviceable condition?.....

20. Is a large woolen blanket readily available in the domestic science laboratory for use in case clothing is ignited?.....

Remarks (Note any changes since last inspection)

The following items to be included in each quarterly inspection:

21. Building construction: Walls..... Floors..... Roof.....
No. stories..... No. class rooms.....

22. Which sections of buildings are equipped with automatic sprinklers?.....
.....
.....
.....

23. Are there at least two means of egress from each floor of the building?.....
Are these so located that the distance measured along the line of travel does not exceed
From the door of any classroom, 125 feet?.....
From any point in auditorium, assembly hall, or gymnasium, 100 feet?.....

24. Are all windows free from heavy screens or bars?.....

25. Do all exit doors open outward?.....

26. Are all interior stairways enclosed?.....
Are doors to these enclosures of self-closing type?.....

27. Are windows within 10 feet of fire escapes glazed with wire glass?.....

28. Are manual training, domestic science, other laboratories, and the cafeteria so located that a fire in one will not cut off any exit from the building?.....

29. Is a smoke-tight projection booth, built of incombustible materials, and vented to the outside, provided for the motion picture machine?.....

30. Are heating plant and fuel supply rooms cut-off from the main corridors by fire-resistant walls, ceiling, and doors?.....

31. Do all ventilating ducts terminate outside the building?.....

32. State type of construction of any temporary buildings in school yard.....
.....
.....
.....

33. Is nearest temporary building at least 50 feet from main building?.....

34. How often are fire drills held?..... Average time of exit?.....

35. Are provisions made for sounding alarm of fire from any floor of building? ..... Is sounding device accessible?..... Plainly marked?.....

36. Give location of nearest city alarm box.....
.....
.....
.....

How far distant from the premises?.....

Remarks

Inspector..... Title.....
Inspector..... Title.....
Inspector..... Title.....

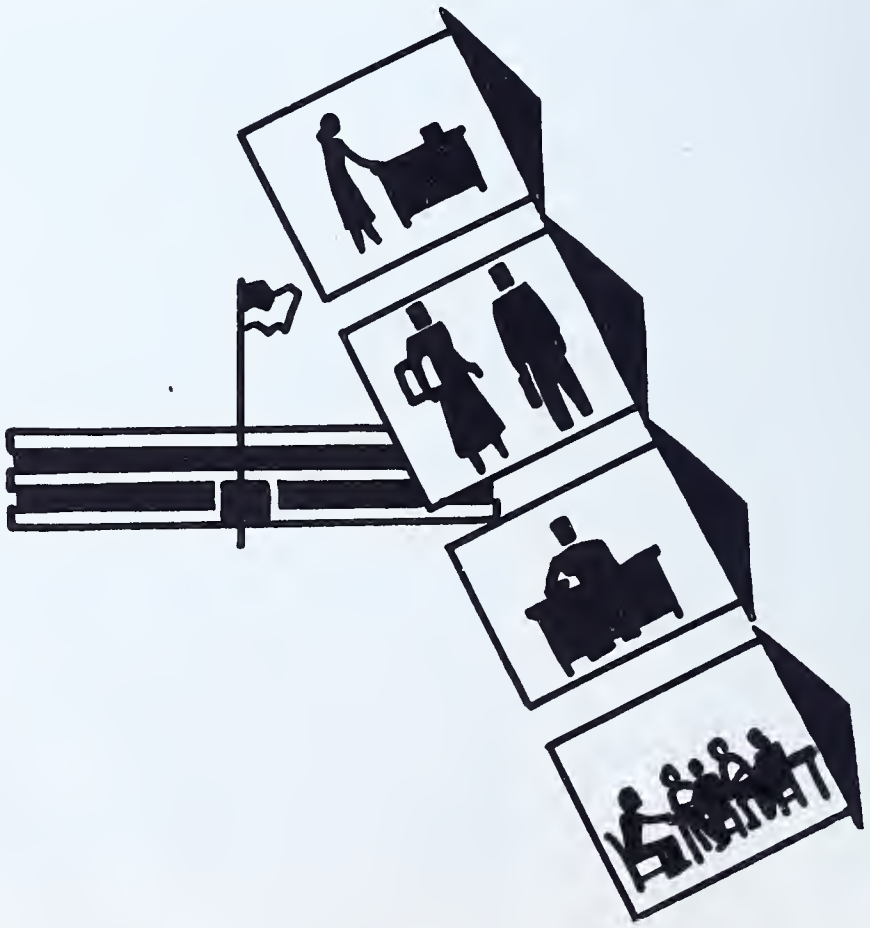
SECTION TWO

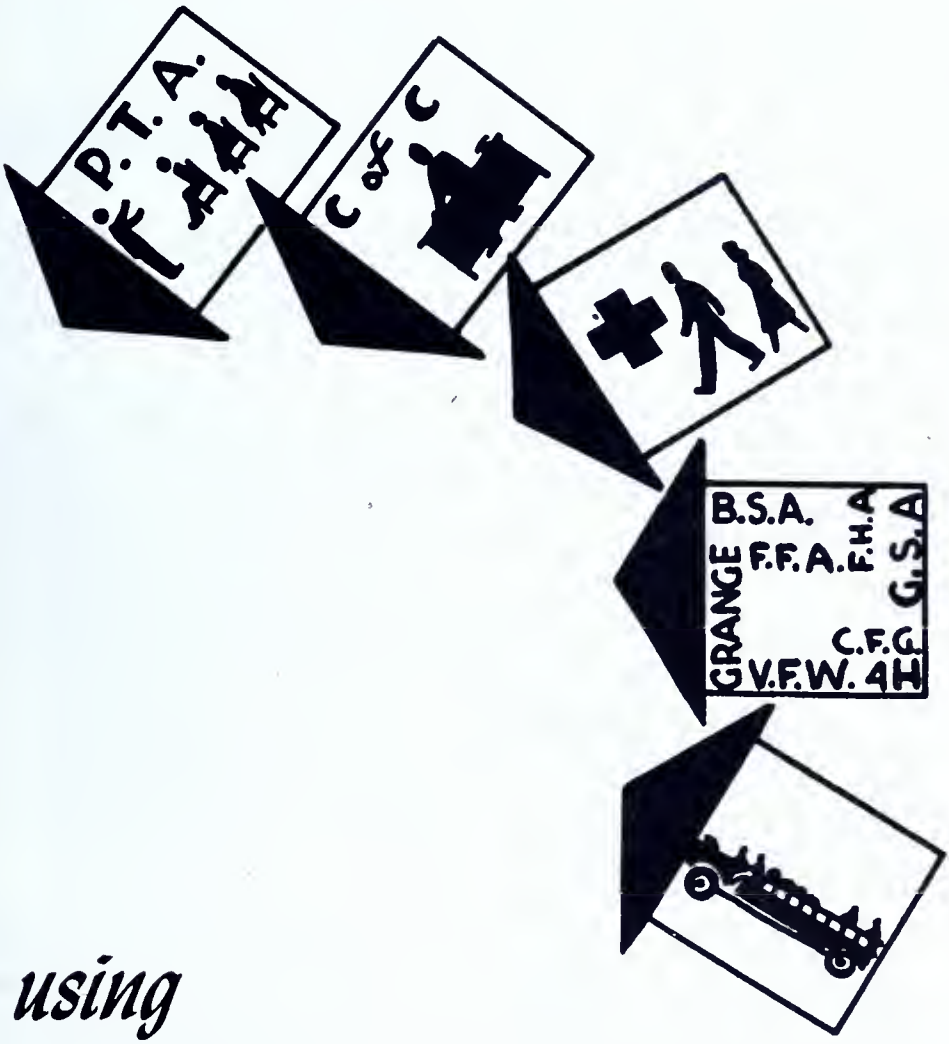
GENERAL SUGGESTIONS FOR TEACHING FIRE PREVENTION

Setting up a Program

IT IS GENERALLY agreed that a good curriculum program is made locally. This is because every school and community differs as to needs, interests, and abilities. Every school and community also differs as to local problems; therefore, a program of fire prevention, like any other educational program, should grow out of local problems.

In every school, teachers, supervisors, principals, and administrators should work together on committees in setting up the program. All the problems of fire prevention, fire protection, and firesafety should be studied to determine what, where, and how to teach this important and necessary aspect of education. It is hoped that the suggestions in this manual will be valuable in this kind of an approach.





using

COMMUNITY RESOURCES

Any worth-while fire prevention program will need to use all of the community resources available. Teachers and administrators should not hesitate to call upon and use the assistance of all community organizations willing and able to help. Some of these groups are: the parent-teacher organizations, church groups, the fire company, the local Chamber of Commerce, Junior Chamber of Commerce, the various service clubs, Red Cross, Boy Scouts, Girl Scouts, Camp Fire Girls, Future Farmers of America, Future Homemakers of America, the local Grange, 4-H Clubs, veterans' organizations, local and regional Firemen's Associations, and local fire insurance and inspection bureaus.

HOW TO *Teach* FIRE PREVENTION

Teaching fire prevention is largely a matter of developing attitudes and habits. A child may know all of the facts, reasons, and rules for safety, yet nothing may be accomplished unless corresponding attitudes and habits are developed.

Desirable habits are taught when there is an opportunity to practice desirable actions. Habits formed in many make-believe situations such as fire drills, putting out fires, and escaping from fires, are necessary objectives in fire prevention education. Attitudes, however, are more difficult to develop. When an attempt is made to develop attitudes through facts, opinions play a part; through reason, rational thinking plays a part; and through understanding, intelligence plays a part. Direct teaching of information alone will not necessarily establish attitudes. They are developed largely when one has an opportunity to explore, to experience, and to evaluate. Likewise, opinions of the group, personal influence of an individual on another, appeals of older persons, lectures, excursions, and audio-visual presentation are most effective in developing attitudes.

Fire prevention, as well as other general learnings, is not a matter only of a specified period per week, month, or year. It must be taught at any time when situations arise or interest is high. The teacher must be alert to highlight fire prevention in all areas of the curriculum. Children can learn fire prevention in the arithmetic class, in social studies, in English, on the playground, and going to and from school.

Many problem situations arise which pertain to fire prevention when children study their school and community, home and family life, government, industries, history, geography, transportation, communication, science; as they use tools and science materials; go on excursions; carry on school housekeeping; dramatize and engage in dramatic play; plan community service projects; and carry out school routines.

Special programs, intensive campaigns, observances such as Fire Prevention Week, and the work of special groups such as Safety Clubs are recognized as valuable. However, these are supplementary activities and must not be considered as the total fire prevention program. School leaders and fire prevention experts agree that firesafety must

be taught in the day-by-day living and learning manipulation of the school curriculum.

It is not necessary to overemphasize the destructive aspects of fire. Instruction should not arouse a high degree of fear in the learner. As far as fire is concerned, pupils should be led to recognize the value of fire as well as the dangers of fire and how to cope with dangerous situations when they arise. Although it is necessary to stress the "nevers" in safety education, the positive approach of "What to do" is preferable to "What not to do."

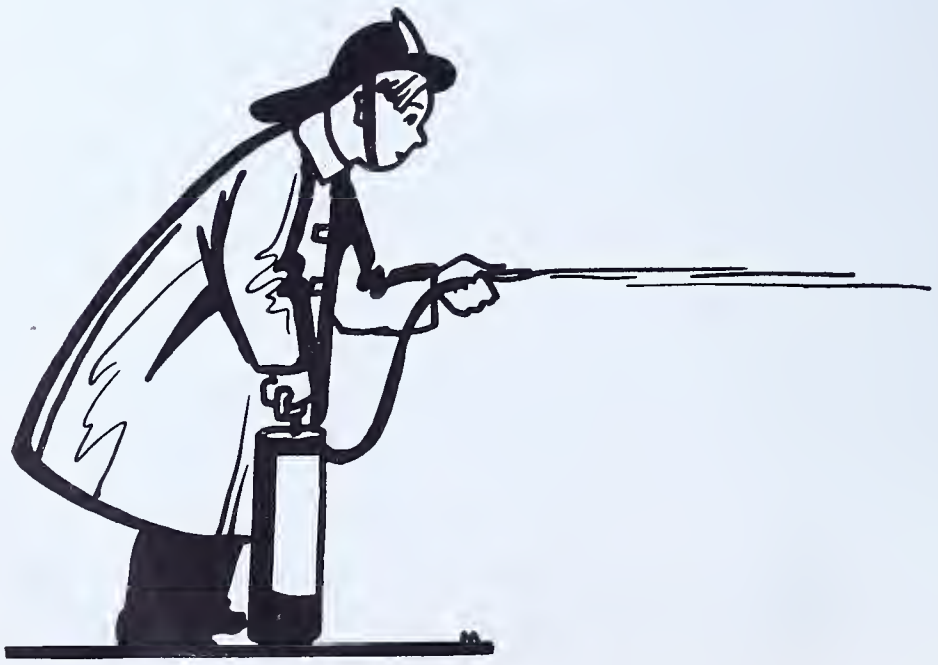
50 OPPORTUNITIES TO TEACH *fire prevention*

Teaching fire prevention is most successful when it is a part of the day-by-day classroom living and learning. It should be studied at times when it is a natural outgrowth of problems or experiences. Look for these opportunities:

1. Lighting the oil stove in rural schools
2. Keeping halls and doorways clear of milk bottles, school furniture, play equipment or any other materials that block exits
3. When planning class excursions, note fire hazards in the community
4. Reading stories that have to do with fires, firemen, or fire-fighting equipment
5. Reading about fire loss statistics
6. A recent fire that occurred in the community
7. A newspaper account of a recent fire in a nearby community or in a neighboring city
8. After a school fire drill, discussion as to how the drill can be made more efficient
9. Fire Prevention Week activities
10. Clean-up Week activities
11. Viewing of movies, filmstrips, and slides that involve fire situations. (However, showing fire protection movies cannot constitute the whole program of fire safety instruction in a school.)
12. A local Firemen's Parade or Carnival
13. Firesafety features in buildings being constructed in the community or nearby communities
14. The disposal of ashes and rubbish in the community
15. Christmas tree decorations
16. Noting the firesafety equipment in the school building

17. Keeping the instruction card near the telephone for calling the fire and police departments
18. When the Fire Chief calls at the school
19. Teaching the specific units on Fire Prevention as outlined in Sections Three and Four of this bulletin.
20. Observing a careless smoker
21. Observing someone playing with matches
22. When the local Fire Company gives a demonstration in the school yard or at assembly.
23. A candlelight service or ceremony (Many schools carry on such activities with wax or tallow candles. Such practices should be forbidden by the responsible school administrator)
24. Noting the location of candy and soft drink vending machines in school halls and corridors (Not simply a violation of good school nutrition but a firesafety hazard)
25. In the study of the community, making a community map, locating fire stations, fire hydrants, and fire alarm boxes.
26. In the school shop, making brackets to hold fire extinguishers.
27. In art classes, making posters, pictures, and signs. Making different reminder tags to take home to hang on doorknobs,—for instance: "Is the iron turned off?" "Pull the toaster plug when not in use."
28. Science experiments. Many experiments require observance of fire prevention.
29. When the fire siren blows and fire trucks whiz by
30. The mounted picture collection should provide motivation (Every school should have a mounted picture collection)
31. Songs about firemen, fire trucks, and fire houses can be introduced in music classes.
32. The ordinary planning and discussion periods provide opportunity for fire prevention education.
33. The school newspaper is a good medium to drive home safety attitudes
34. A grass or brush fire in a nearby lot
35. Noting the exit signs in the auditorium
36. Noting men refilling the fire extinguishers
37. Observing that the fire escapes are being cleared of snow
38. A class excursion through the woods to note the fire hazards to woodlands
39. When the local volunteer fire company solicits funds in the community
40. Examining the local tax bill: noting the cost of fire protection.
41. Investigating the smell of smoke. If no danger, discuss possible action to be taken in the event of fire

42. All kinds of firesafety materials can be displayed on the bulletin board at times
43. In dramatizations. Many plays are directly concerned with fire prevention. However, in all dramatic productions firesafety precautions must be taken in relation to costumes, props, and scenery
44. In the home economics department: situations that may cause burns, scalds, and fires.
45. In the school science laboratory: situations that may cause explosions, burns, scalds, and fires
46. In the school shop: hazards from sparks, short circuits, dust, shavings, gas, flammable volatile liquids, oil, etc.
47. Fire hazards involved in costumes worn on Halloween and on other holidays and occasions
48. Filling out home inspection blanks
49. General safety rules compiled by the class
50. Telling about fire hazard incidents that take place at home or in the community



SEASONAL OPPORTUNITIES TO *Teach* FIRE PREVENTION

IN THE FALL

1. When we celebrate Halloween, we use flashlights in jack-o'-lanterns.
2. When we go for a walk in the woods, we note the fire hazards of dry leaves and unguarded fireplaces.
3. At Thanksgiving time we avoid being burned by hot stoves and fireplaces. We are careful not to be burned by hot grease and other scalding food.
4. We pay attention to the proper disposal of fallen leaves. We bury them in flower beds.
5. When we get our stoves and furnaces ready for cold weather, we make sure that stove pipes and chimneys are thoroughly clean and safe. We make sure that open fireplaces are properly screened. We check gas and oil heaters for leaks and other fire hazards.
6. We make sure that ashes are placed in metal containers when stored in the cellar.
7. We observe Fire Prevention Week by contributing to its activities. (Fire Prevention Week is observed each year during the week in which October 9 falls.) Activities may consist of making posters, compositions, songs, plays, slidefilms, movies, talks.
8. The fall is a good season of the year to have the class make a safety tour of the building. (See Learning Activities, Section Three for further suggestions.)

IN THE WINTER

1. In the winter there are many indoor meetings, gatherings, parties, athletic contests, and other activities. In public buildings we learn the location of fire exits, fire alarm boxes, and extinguishers, and when and how to use them.
2. We learn to use the telephone in reporting a fire. We practice with toy or real telephones and fire alarm boxes. We know where to call and how to tell what is on fire and the location. We go outside to direct the fireman to the fire. Each pupil knows the location of the fire alarm box and the telephone nearest his home.
3. We know that lighted candles on a birthday cake can be dangerous if not used in a safe way and always under the supervision of older people. Never use lighted candles at a school birthday party.
4. We learn that a Christmas tree can be dangerous. We learn that the tree should be placed in a pan of water; the tree or Christmas greens should be discarded before they get too dry; the tree should never be lighted with wax or tallow candles; and the tree light circuits should never be overloaded.
5. Some Christmas toys can be dangerous. We discuss how to handle these toys properly so as not to set fire to ourselves or our homes. We prepare a list of safe and a list of dangerous Christmas gifts. We learn what safety labels should be found on electric appliances and toys.
6. We know there is an opportunity to learn fire prevention in the burning of the Christmas trees on Twelfth Night when carried on as a community project. (See Special Observances, pages 30-32.)
7. The winter season is a time to be careful not to overheat stove pipes and chimneys. We learn how to prevent this and what to do when a chimney catches fire.
8. When there are high winds we do not kindle open fires.
9. We have learned that the winter season is a good time in the schoolroom for fire prevention dramatizations, stories, songs, movies, filmstrips, and slides. (See General References, Section Five.)
10. Winter is a good season for us to invite the local Fire Chief to speak to us at assembly. We ask him to wear his uniform.

IN THE SPRING

1. Clean-up campaigns, in the schoolroom, in the schoolyard, at home, and on vacant lots give us an opportunity to participate and to report on the clean-up of trash. We can organize our own committees to clean up a vacant lot or our own schoolyard. (See Special Observances, pages 30-32.)
2. When we fly our kites we choose a wide open space away from overhead wires.
3. In the spring housekeeping season, we discard oily rags and trash, we check wiring and electrical appliances, and replace or repair worn equipment. We dispose of our trash in a firesafety way.
4. In planning for picnics and camping trips, we plan to be careful in putting out fires and keeping them under control. We know that in preparing a campfire, a place should be selected away from dry grass or leaves. When we leave, we will extinguish the fire with water or sand.
5. In planning our summer vacation we will avoid all explosives and fireworks at all times. We know that on the Fourth of July and at other times it is illegal to sell, use or explode any fireworks. (Toy pistol paper caps which contain less than twenty-five hundredths grains of explosive mixture are permitted.) We know that Roman candles and sparklers are dangerous and are illegal for sale and use. When we wish to see fireworks, we will plan to attend a supervised public display of fireworks handled by competent operators under authority of a granted permit. (See Act No. 65 of the 1939 Pennsylvania Legislature, P. L. 134. Also, Act No. 70 of the 1941 Pennsylvania Legislature, P. L. No. 132.)
6. The trip to the Fire House in connection with our Fire House Unit gives us many opportunities to listen, to speak, to read, and to write concerning firesafety.
7. The spring is a good season of the year for us to invite the local fire company to demonstrate its fire-fighting equipment in the school yard.

SPECIAL OBSERVANCES

FIRE PREVENTION WEEK[1]

Fire Prevention Week is set aside each year during the week in which October 9 falls to focus public attention upon our loss of life and destruction of property by fire.

To be fully effective, Fire Prevention Week should be utilized as the starting point for year-round fire prevention activity by public officials—in schools—in the factories and stores—by all civic organizations working for the betterment of the community.

Fire Prevention Day was first observed throughout the United States on October 9, 1911. It began when the Fire Marshals Association of North America, now a section of the National Fire Prevention Association, suggested that the fortieth anniversary of the Great Chicago Fire be set apart for bringing the public the much-needed lessons of fire prevention.

In 1920 President Woodrow Wilson issued the first National Fire Prevention Day proclamation, but it was not until 1922 that the whole week containing Fire Prevention Day (October 9) was officially proclaimed Fire Prevention Week by President Harding, to be observed "by every man, woman, and child, not only during the week designated in this pronouncement but throughout every house on every day of the year."

Each President in turn has proclaimed the week which contains October 9 as Fire Prevention Week. This week is now so thoroughly established that each year, each state, city, and town in the United States and Canada looks forward to participating in its observances as the beginning of an entire year of intensive firesafety work.

Activities which can be carried out by schools in the observance of Fire Prevention Week are suggested in the Fire Prevention Week Handbook of the National Fire Protection Association, and also in Tested Activities for Fire Prevention Committees of the Federation of Mutual Fire Insurance Companies. (See General Bibliography of Books and Pamphlets in Section Five.)

[1] Taken from "Why Fire Prevention Week," National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

CLEAN-UP CAMPAIGN

Many local communities designate a Clean-Up Week at which time citizens are asked to cooperate by removing trash from yards, alleys, vacant lots, and attics and basements of buildings. This activity has a significance for fire prevention since such trash creates fire hazards.

Schools teach citizenship by having pupils participate in clean-up activities. Such activities may consist of

A fire hazard hunt with prizes for those who spot the most fire hazards.

Fire Prevention Exhibits such as a clean camp or clean park.

Cleaning up the schoolyard or a vacant lot.

Distributing circulars about Clean-Up Week.

Making posters.

Planting trees or shrubs to beautify parks, roads, or school grounds.

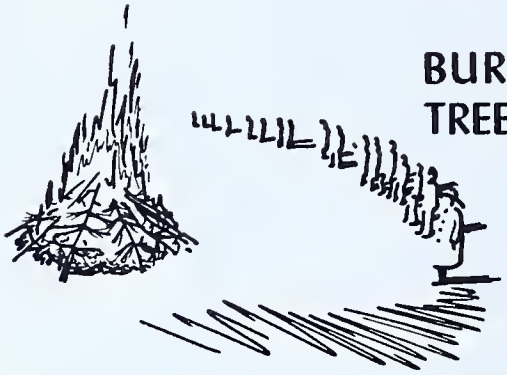
Parades to advertise the campaign.

Inspection of the school building before and after the campaign.

Reports and compositions on Clean-Up Week at homes of pupils.

Collecting waste paper as a help in cleaning up the community.

The National Fire Prevention Association prepares new campaign material for Spring Clean-Up each year.



BURNING OF CHRISTMAS TREES ON TWELFTH NIGHT

The traditional English name given to the holy day celebrated on January 6, is Twelfth Night. This is twelve nights after Christmas and is sometimes called Epiphany.

Since, according to custom, Christmas greens should be taken down by Twelfth Night, many communities are now making an organized effort to gather all of the Christmas trees at one location and burn them with appropriate exercises on Twelfth Night. Schools can assist in such projects which are valuable in helping to reduce fire hazards.

EVALUATING THE RESULTS

As in other phases of education, the effectiveness of a fire prevention program can and should be measured. Any evaluation would consist of the performance of pupils, the attitudes developed, and the practical results attained in the community.

PERFORMANCE OF PUPILS

The effectiveness and efficiency of the fire drill would be an indication of habits and skills acquired. The kind of responses in simulated or real situations would be another. The safe handling of potential dangers in the laboratory, shop, schoolroom, and playground would be an indication of the success of the program.

ATTITUDES DEVELOPED

Attitudes are difficult to measure objectively but they can be measured in terms of performance and results achieved. A pupil may know all of the facts and procedures to be followed in any safety situation and yet he may disregard what he knows in actual practice. This is an indication that proper attitudes were not developed.

However, attitudes can be measured by study of questions such as these:

Is there a decrease in the number of false fire alarms in the community?

Are there fewer cases of children playing with matches?

Has the attitude toward the fire drill improved?

Is there less tampering with firesafety equipment in the school, such as fire extinguishers, fire hose, and break-glass alarm boxes?

Is there a greater interest in exploring firesafety situations?

RESULTS IN THE COMMUNITY

The important goal of a school fire prevention and protection program is the practical results in the community.

Is there evidence that homes are being made more safe?

Are there fewer fire accidents?

Has the amount of fire loss decreased?

Are parents more interested than formerly in the school firesafety program?

Is there an increased amount of cooperation on the part of community organizations?

Has the community fire protection equipment been improved?

SECTION THREE

TEACHING FIRE PREVENTION IN THE ELEMENTARY SCHOOLS

General Principles

TODAY WE BELIEVE that when the three R's are taught, and even additional bodies of knowledge, only a fractional part of the total job of educating the child has been accomplished. It is not to be inferred that these parts of an individual's education are not important. One needs a mastery of the three R's as tools for further learning and one needs to have information concerning the world in which we live. However, when these things have been taught, it is still the teacher's responsibility to teach the child those general learnings which will more adequately enable him to cope with and adjust to life's situations. Thus society will be protected, improved, and advanced.

The general learnings which appear to meet the needs of all children and which particularly apply to the elementary school may be listed as follows: (1) character and citizenship, (2) conservation, (3) consumer information, (4) health (including nutrition and the effects of alcohol, stimulants, and narcotics), (5) home and family relationships, (6) humane education, (7) intercultural relationships, and (8) safety (including fire prevention.[1]) It is mandated by Pennsylvania State Law that health, citizenship, humane education, and safety be taught in all public and private elementary schools.

The elementary school is perhaps the most fertile field for teaching fire prevention. It is in these early years that habits and attitudes are more readily formed. When one realizes that a child's social, emotional, and educational pattern is fairly well established by the time he reaches the age of twelve, the importance of the general learnings becomes apparent. In addition, children in the elementary school are vigorous and enthusiastic workers and are willing to explore situations which lead to fire prevention learnings.

[1] Bulletin 233-B, *The Elementary Course of Study.* "Special Aspects of Education," pp. 529-530. Commonwealth of Pennsylvania, Department of Public Instruction. 1949.

Teach CHILDREN FIRESAFETY BY *activity games*

THE FIREMAN[1]

In the example of dramatic play given here the children use their imagination to interpret the fireman in a group activity during the recreation period. The sequence can be altered and expanded.

The leader calls out the situation	*The group performs the activity*
Fireman sleeping	Close eyes, tilt head to side, and rest on clasped hands
Fire alarm rings, fireman wakes, and jumps out of bed	All jump high
Fireman dresses	Reach high to take clothing off hooks and dress in a hurry
Sliding down the pole	Extend arms forward as if encircling pole and bend the knees
Driving to the fire	Simulate driving a truck, make noises like sirens and bells
Putting up the ladders	Bend knees, heave up ladder
Climbing the ladder	Stretch arms and raise knees alternately
Turning on the water	Place hands in position as if holding hose
Climbing down the ladder	Raise knees and hands alternately
Returning to fire house	Repeat activities

FIRE[2]

In this activity game, children develop habits through practice of situations which may actually take place. A square of red paper or red cloth is used to represent "Fire."

1. The teacher or a leader places "Fire" on the clothing of a member of the group. The child so designated pretends his clothing is on fire. He lies down, covers his face with his arms and rolls over slowly. "Fire" is out when leader removes sign.

[1] Adapted from *Physical Activities for Elementary Schools,* 1949, by permission of the Board of Education of the City of New York, Bureau of Curriculum Research, Brooklyn 2, N. Y.

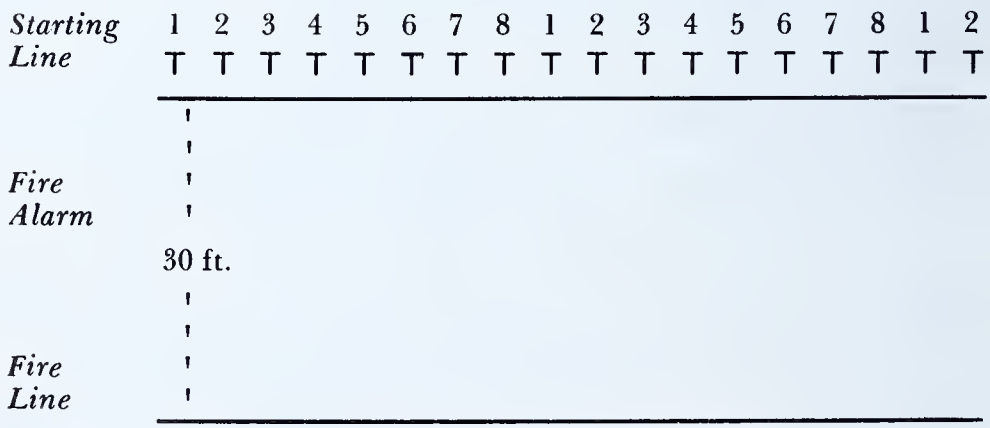
[2] This activity is adapted by permission from *Fire Prevention and Safety Handbook for Texas Public Schools.* Austin, Fire Insurance Division, Board of Insurance Commissioners.

2. When "Fire" is placed on a child wearing a coat, child pulls coat over head, pulls it tight around the neck, and rolls on the floor.
3. When "Fire" is placed on girl wearing a dress, child simulates removing the garment over the feet to prevent inhaling fumes.
4. Certain designated pupils wrap in a rug and roll on floor when "Fire" is placed on them.
5. When "Fire" is placed on the floor, several of the group who have been designated previously, tie handkerchiefs around the nose and mouth, crawl near the wall to find an opening, and close the door after them.
6. When "Fire" is placed in the corridor, a pupil designated previously goes to the door, puts hands on door to see if it is too hot. If not too hot, opens the door cautiously, standing aside with foot against it. If too hot, pupil goes to window and shouts for help.

FIRE ALARM[1]

This game is suitable for children in the Primary Division of the elementary school.

Formation: The players are numbered from one to eight consecutively, and all stand in that order behind a Starting Line, facing a Fire Line, which is about thirty feet away. Players having the same number constitute one group. Thus there are eight groups. One player steps to the front and acts as FIRE ALARM.



Description: To start the game FIRE ALARM calls the number of a group. All players in that group run to the Fire Line and back, the first player back becomes the FIRE ALARM. The FIRE ALARM may call "General alarm," in which case everybody runs.

[1] By permission from *Course of Study in Physical Education, Grades 3 and 4*, 1950, Division of Physical and Health Education, Philadelphia Public Schools.

conversation and planning PERIODS IN THE ELEMENTARY SCHOOL AS AN OPPORTUNITY TO TEACH FIRESAFETY

Many teachers consider the conversation and planning period held at the beginning of the morning session in the elementary school as an important part of the whole living and learning plan of the school day. A conversation and planning period is desirable for all grades in the elementary school. By sharing experiences children fix learnings, improve their oral English, derive information, build concepts, and strengthen security by sharing in the planning of the activities of the whole group. Fire prevention learnings will be a natural part of this activity and may include:

1. Reporting fire prevention experiences in the home—gas leaks, defective furnaces, clogged chimneys, burning trash and waste paper, fires from cooking grease, dangers from candles, defective wiring, playing with matches, cleaning fluid, and oily rags.
2. Observing situations on the way to school—firemen in action, reporting fires, finding matches, cartridges, and blasting caps
3. Relating newspaper accounts of fire loss
4. Noting the fire hazards in homes, school, and community
5. Organizing ideas relative to fire prevention
6. Discussing or telling about a movie on fire prevention that has been seen by members of the group
7. Reading or telling stories about firemen and fires
8. Discussing care with fire in the woods or fields and the importance of prevention
9. Planning a unit on firesafety
10. Planning firesafety for scheduled hikes, trips, and picnics

How To *Use* The Learning Activities Which Follow In This Section

(Illustrative Units)

1. Examine all of the learning activities so as to become acquainted with the numerous possibilities for teaching fire prevention in all areas of the elementary curriculum.
2. Make notes of how the suggested experiences and procedures under the various learning activities can become part of various subject matter areas. Better still, add or "knit" items into existing outlines or units so that they will not be overlooked at the time they should be introduced.
3. Experience units can be organized from the learning activities and taught directly for a specified period of time for the purpose of stimulating interest, for emphasis or for expediency. However, instruction in fire prevention must not be confined only to a time block of the year's program and then forgotten.
4. Refer to the learning activities for things to do or talk about when interest is high or when an opportunity occurs to teach fire prevention.

I. *How can* LITTLE FOLKS BE SAFE FROM FIRE?

LEARNING ACTIVITIES FOR THE KINDERGARTEN AND PRIMARY DIVISION OF THE ELEMENTARY SCHOOL

The teacher can direct experiences on fire prevention which are appropriate for the kindergarten and primary grades. They will fit readily into the sequence as suggested by the Pennsylvania Elementary Course of Study[1]: For Grade I, "Our Homes and How We Live in Them," "How We Go to and from School and What We See on the Way," and "Our School and How We Live in It"; and for Kindergarten, "Studies Concerned with Social Living."

Here in the first year of school we have many little folks who are still strongly tied to their homes. They are in the process of being oriented to the school world with all of its new associations and acquaintanceships. To accomplish this transition, the teacher will direct conversation and activities concerning homes, pets, toys, family activities, neighbors, things done and observed going to and from school, the school, school functions, weather, distances, plants, holidays, and many other interesting things of importance to the young child. Before a child learns to read there must be much listening and speaking for the purpose of building vocabulary, concepts, and other reading readiness abilities. What more interesting or important things to talk about than how to be safe from fire.

The latest available figures from the National Safety Council[2] show that in one year 2,344 children in the United States, age fourteen years and under, lost their lives as a result of burns, scalds, and explosions. The number of accidental deaths from this cause for this age group exceeded all corresponding age groups for the same cause. It is, therefore, not too early to teach fire prevention in the very first year of school.

POINTS FOR SPECIAL EMPHASIS

1. Safety education is not complete until proper attitudes and habits are established.
2. Attitudes are developed when there is an opportunity to explore, to experience, and to evaluate.
3. Habit formation must not be overlooked in teaching safety. Automatic responses are formed in many make-believe situations such as fire drills, putting out fires, extinguishing burning clothing, and escaping from smoke-filled rooms.

[1] Bulletin 233-B, *The Elementary Course of Study.* Chapter IV, "Social Living," and Chapter X, "Kindergarten." Harrisburg: Commonwealth of Pennsylvania, Department of Public Instruction, 1949.

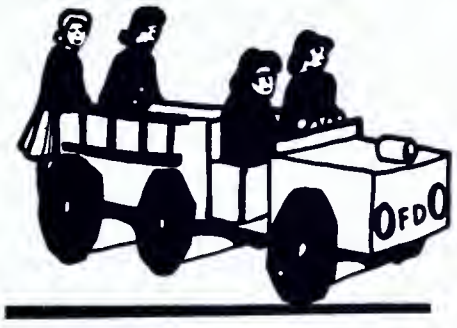
[2] National Safety Council. *Accident Facts.* Chicago 11: The Council, 425 Nortb Michigan Avenue, 1950. 97 pp. 60¢.

4. Young children learn primarily through dramatic play—the re-enactment of real situations in which drama, music, art, and literature play a part.
5. "We learn best those things we experience" is not merely an educational philosophy where safety is concerned. It may take the place of the many "nevers" the child must accept.
6. "Never" may be a better term to use than "don't." "Never play with matches." "Never get close to an open fire." "Never leave a camp fire burning."
7. In all practice situations, the adult is always the necessary partner when fire prevention learnings take place.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. What kind of stoves or heaters are in our homes? What is used for fuel? Who in the home takes care of them? How must we be careful not to be burned by them?
2. How must we be careful not to be scalded by hot water, hot food or hot grease heated on a stove?
3. What are the electrical appliances in our homes which may shock or burn us if we are not careful? What practices must we avoid in using electric toasters, irons, fans, and other appliances? What must we never do with wires, extension cords, fuses, sockets, and plugs? Why must we never touch a light switch when our hands are wet?
4. Where are the matches kept in our homes? Are they in safe places? Why must small children never use or play with matches? If we find matches what should we do with them? Why must we never carry matches in our pockets?
5. What must we do if our clothing accidentally catches fire?
6. How are waste paper and trash disposed of at our homes? If they are burned who is responsible for seeing that they are burned carefully? Why must we never go near a lighted bonfire or play with it?
7. How do we treat simple burns?
8. Do we know what to do if our home starts to burn? Do we know how to get out safely or how to call the fire company? Why should we never lock our bedroom doors at night?

9. Do we have fire drills at our home just as we do at school? How could we help to organize such a home fire drill?
10. What toys are dangerous and how might we be injured by them?
11. Why should we never touch a wire that has fallen to the ground from a telephone or light line?
12. Why should we never fly a kite near overhead wires?
13. If we have a picnic fire or a camp fire, why must we always put water on it or cover it with dirt before we leave? Why should an older person make and tend such fires for us?
14. Why do we have fire drills in school? What are the rules to follow in a fire drill?
15. Why should we never play with a fire alarm by breaking the glass or pulling a lever when there is no fire?
16. How can we cooperate with the firemen and the fire company?
17. Why should we never use lighted wax candles on a Christmas tree? Why are lighted candles dangerous for other uses in our homes such as in jack-o'-lanterns?



THINGS TO DO

1. Look at pictures of homes and family life and discuss how home can be made safe.
2. Plan an excursion to a nearby home in order to see examples of firesafety in the home. (For information on Making Use of Field Trips and Excursions, see Bulletin 233-B, pp. 47-50 and pp. 497-498). Upon return to school the class can talk about what was seen in relation to fire prevention. The teacher can make an experience chart on the observations to be used as part of reading instruction. A visit to an unfinished house will reveal many safety situations.
3. Have the children tell about other houses they have visited, such as an aunt's home or grandmother's home. Guidance on the part of the teacher will reveal many safety situations.
4. The class may wish to visit the fire house. (See Bulletin 233-B, Chapter X, Kindergarten, pp. 497-500. Also, see the Learning Activities in this section, "What is the Work of the Fireman in Our Community?")
5. Have the children tell about accidents resulting in burns, scalds, and electrical shock which have happened to them or members of their families.

6. Fire prevention education for small children would not be complete without firemen's hats. The best way to get them is to make them out of heavy construction paper. If we make a fire truck out of the little red wagon we are ready to play fireman and to put out that fire.
7. Look in basal readers and social studies texts for firesafety stories to be read to the class. The children may want to retell the stories or dramatize them. (See References for Children in Section Five.)
8. Keep a list of new words encountered or discussed. Write them on the board to be used in word recognition, spelling, writing, and counting.
9. Make firesafety posters with either crayons or tempera paint. The teacher can assist with labeling. Suggested topics:

    Never play with matches.
    Never throw away lighted matches.
    Never go near a fire.
    Never leave a camp fire burning.
    Never play with fire.
    Never put candles on a Christmas tree.
    Obey fire drill rules.
    Help the fireman.
10. The use of finger painting is increasing in popularity in the kindergarten and primary division of the elementary school. Use red finger paint to teach fire prevention. Boiled laundry starch with paint powder makes a good substitute for finger paint. (See page 563 in Bulletin 233-B for recipe.)
11. Have the class make a wall mural on firesafety as an outgrowth of discussion and study.
12. Have each member of the class draw a fire house. Have the class select the best picture and using this as a model, build a fire house in the schoolroom.
13. Make a tour of the school building to note the firesafety equipment. Upon return, make a list of appliances seen and discuss why we must have them.
14. The young pupil should have much extra practice and instruction in the fire drill. Enlist the help of the older pupils from the Fire Squad for special drills. (See Section One for details.)
15. Select and show appropriate firesafety movies. (See General Bibliography.)
16. Cooking experiences in the classroom provide many opportunities to teach fire prevention. An electric hot plate in a primary classroom can be considered standard equipment.
17. Have children in turn select imaginary locations of a fire, and then have each practice telling plainly and distinctly where the fire is located.

2. *What is the work* OF THE FIREMAN IN OUR COMMUNITY?

LEARNING ACTIVITIES FOR THE PRIMARY DIVISION OF THE ELEMENTARY SCHOOL

The teacher can direct experiences on this topic which are appropriate for the primary grades. They would fit readily into the sequence as suggested by The Pennsylvania Elementary Course of Study, Chapter IV, "Social Living"; in Grade II, "Workers in Our Community"; and in Grade III, "Where the People in Our Community Work and What They Do."[1]

All children like fire-fighting apparatus and equipment and like to see firemen slide down poles and rush off to answer a fire alarm. Many communities report that the number of false fire alarms is reduced when children have the opportunity to study the work of the firemen, to visit fire houses, and are given a broad view of the purposes of the fire department and its interest in saving lives and property in the community.

POINTS FOR SPECIAL EMPHASIS

1. Firemen, firehouses, and fire-fighting equipment are a very necessary part of the community in which we live
2. Firemen work to protect lives and property of all the people in the community.
3. Fire trucks, equipment, and their operation cost a lot of money
4. People in the community are willing to contribute money in various ways so that fire companies and fire departments can operate.
5. We should cooperate in every way possible so as to help the firemen put out fires.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. Where is the nearest fire house in our community located?
2. Can we name different kinds of fire trucks for different types of work?
3. How do the firemen know where to take the fire truck when there is a fire?
4. Who turns on the fire siren?

[1] Bulletin 233-B, *The Elementary Course of Study*. Harrisburg: Commonwealth of Pennsylvania, Department of Public Instruction, 1949.

5. Where is the fire truck kept when it is not in use?
6. What is a fire alarm box and how is it used?
7. Where does the fireman stay when there is no fire?
8. Are all firemen paid for fighting fires? Do some do other work?
9. How do fire companies in our community get money to pay fo trucks and equipment?
10. What stories have we read about firemen?
11. Describe motion pictures you have seen about firemen in action
12. Tell about someone we know who is a fireman.
13. What kind of clothing does a fireman wear?
14. How do firemen take care of those injured or overcome by smoke
15. How can we learn more about firemen, fire trucks, and fire houses

SOME APPROPRIATE THINGS TO DO

1. The teacher and the pupils plan together for a visit to a fire station. In planning a trip of this kind many things must be considered. We need to get permission from the Fire Chief, the school principal, and our parents. We need to know what to look for and what questions to ask and who shall ask them. We need to plan how to get there and back safely. We need to know how to act so that we will be welcome and be invited back again. For a more detailed description on taking field trips, see pages 48 and 49, *The Pennsylvania Elementary Course of Study.*
   Seeing, listening, talking, and writing about our trip give us practice in oral and written English in addition to the information we acquire concerning the world about us. When we return from our visit to the fire station, the resourceful teacher will have many opportunities for all types of learnings.
2. Have the children collect pictures from magazines or other sources pertaining to firemen and fire-fighting equipment. Make a bulletin board display or add to the mounted picture collection for permanent use. See pages 516 and 517, *The Pennsylvania Elementary Course of Study.*
3. Have the class construct on craft paper or newsprint paper a large-size wall mural using water paint, crayons, or other media. The group should plan what is to go into the mural and every pupil should make some contribution. Firemen, fire trucks, and the firehouse can be shown in the proper community setting.
4. Have the class construct a table or sand-table project. This may be a part of a larger unit on the community in which the firehouse, fire alarm stations, fireplugs, firemen, and fire trucks are shown in miniature. As the unit progresses the things needed for the project can be discussed and listed for reading, spelling, printing, and for counting.
5. With other primary classes show a fire prevention movie or a strip film on firesafety which later can be used for discussion. (See list of films in Section Five.)
6. Look in available readers or social studies books for stories of firemen. Use individual titles or sets as part of the whole reading program. (See Bibliography in Section Five.)
7. Dramatize a fire prevention situation, either a play that the children have written themselves or one that is available. (See Bibliography of dramatizations in Section Five.) This may be used as an assembly program.

8. Have children make art posters on various phases of fire preven tion. The art supervisor will have valuable suggestions. The ex perience of making the poster is of greater value than the poste itself.

9. Sing songs on fire prevention. (See Bibliography in Sectio Five.) Children of this age like to make up verses of their ow which can be readily set to music by an enterprising teacher.

10. Have the class construct a large wall map or small individua maps of the community showing the fire house, fire alarm boxes and fire hydrants in the total setting of the community.

3. *How can* ELECTRICITY BE USED SAFELY?

LEARNING ACTIVITIES FOR THE INTERMEDIATE DIVISION OF THE ELEMENTARY SCHOOL

This topic will provide experiences appropriate for the intermediate grades. It would fit readily into the sequence as suggested by The Pennsylvania Elementary Course of Study, Chapter IV, "Social Living": Grade V, ELECTRICITY AND MAGNETISM, HOW DOES MAN ENJOY HIS NATURAL SURROUNDINGS, and HOLIDAYS AND SPECIAL DAYS.[1]

In handling electrical devices the hazards are so mysterious that it is just as important to teach the dangers involved as it is to teach other corresponding learnings. Electricity is a tremendous subject but a few simple lessons will go a long way to help boys and girls protect themselves from its dangers.

In 1948 the number of deaths due to electrical shock totaled 1,127. Of these 256 were caused by lightning.[2]

From these statistics teachers should see much value in acquainting children with hazards in everyday use of electricity and developing attitudes of alertness and carefulness with regard to electrical devices.

POINTS FOR SPECIAL EMPHASIS

1. Touching anything charged with electricity is liable to result in shock.
2. To overload a circuit with too many appliances may result in a fire.
3. Electrical appliances should be disconnected when they are no longer in use.

[1] Bulletin 233-B, *The Elementary Course of Study.* Harrisburg: Commonwealth of Pennsylvania, Department of Public Instruction, 1949.

[2] National Safety Council. *Accident Facts.* Chicago 11: The Council, 425 N. Michigan Avenue, 1950, 97 pp. 60¢.

4. Care should be taken in running extension cords. Cords shoul not have loose connections or be worn bare of insulation.
5. A trained electrician should always be called to install or repai electrical equipment.
6. The master switch should always be pulled before inserting a ne fuse. Pennies or other materials should never be substituted fo fuses. Only adults should change fuses.
7. Appliances or electrical toys should be used only when they are o an approved type.
8. It is dangerous to climb a pole to which wires are attached.
9. To touch a dangling wire or to pick up a fallen wire is dangerous
10. Kites should never be flown near overhead wires.
11. During a thunderstorm stay away from fences, iron posts, poles trees, and swimming pools.
12. A person who has had an electric shock should not be touche before he is first pushed or pulled away from the live wire by th use of a dry wooden pole or rope.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. What are instances of you or other persons getting shocked?
2. Where does electric power come from?
3. What do we know about Benjamin Franklin and others who hav experimented with electricity?
4. What are the changes that have been brought about through th increased use of electricity?
5. What electrical inventions have been beneficial?
6. What possible dangers from electricity are to be avoided? Includ such dangers as short circuits, overloading circuits, extension cords fuses, extension plugs, dangling wires. uncovered wires, unap proved appliances, flying kites, and lightning.
7. Comment on newspaper accounts where there has been loss of lif or property as a result of faulty wiring or improper use o electricity.
8. Why is it better to use electric lights than candles on a Christ mas tree? Why must care be taken to keep the wiring in goo condition?
9. What have individuals in the class learned about electricity from visits to power plants, radio stations, museums, and electrical stores?

SOME APPROPRIATE THINGS TO DO

1. Plan a trip to a power plant, radio station, and electrical appliance store, or to an electricity display in a museum. Planning a class trip requires definite techniques. See pages 49 and 50 of *The Pennsylvania Elementary Course of Study.*

   After the trip has been taken, the resourceful teacher will have many opportunities to knit the safety learnings into all areas of the curriculum. The trip will build concepts for reading instruction. Talking about it will improve oral language. Writing about it will improve written communication.

2. Invite an electrician or fireman to visit the class and tell about safe practices in the use of electricity. If the fireman wears his uniform, the impressions upon the pupils will be more lasting.

3. Have a committee find stories about electricity. These may be found in the library or brought from home. They can be used in the reading classes. (*The Twins and Mr. Jinx* by Maud Hart Lovelace is an excellent electricity safety story to be read to the class. See References for Children in Section Five.)

4. Have a committee make up a list of words about electricity which can be used in the spelling class. Examples are: wire, cord, lightning, shock, pole, conduit, insulation, plug, bulb sockets, fuse, switch, conductor, dynamo, meter, watt, volt, ampere, and transformer.

5. Individual pupils in the class may make up poems about carelessness with electricity. Many can be set to music. A committee can select the best composition. These are examples:

   Mary had a little iron
   'Twas carelessly connected
   Nasty burns from little sparks
   Made Mary quite dejected.
   contributed

   Little Jack Horner sat in a corner
   Near an electrical outlet
   He put in his thumb
   My, was he dumb!
   His hospital bill was a large debt.
   contributed

   Jack and Jill went up the hill
   To fly a kite with wire
   The power line was not so fine
   Jack's crown was set on fire.
   contributed

6. Devise some classroom experiments with electricity.[1]
   a. Set up an electrical circuit using dry cells, bell wire, miniature lamp and socket. Show that the lamp does not light when the circuit is broken. A bell may be used instead of the lamp. House current should not be used for classroom experiments.
   b. Substitute various types of materials for wire in the above to test for kinds of conductors and nonconductors of electricity. Note that some materials would make good insulators since they are poor conductors of electricity. Make a point that one should never touch a switch or appliance when the body is wet.
   c. Study the source of electric current by taking apart old dry cells, laboratory-type magnetos, and generators. Construct a wet battery, getting information if necessary from a science book.
   d. Examine the coverings of various kinds of insulated wire. Explain why extension cords should always be in good condition.
   e. Take apart an old electric iron to observe the heating unit and mica insulation. Observe the heating unit of an old toaster when the current is turned on. Emphasize the fact that when these appliances are not in proper condition serious burns or fires may result. An iron turned on when not in use may cause a serious fire.
   f. Place a piece of paper on a 100-watt bulb. Note the serious hazards if a lamp shade is inflammable.
   g. Examine a fuse box and different kinds of fuses. Show how a fuse works by attaching tin foil between end of wires attached to one dry cell and then two dry cells hooked in series. Explain that fuses protect a home against fires caused by short circuits due to defective wiring and worn insulation. Fuses also are a protection against overloading the circuit by attaching too many appliances to the same outlet. In general, heating devices draw heavy currents (8 to 12 amperes). Electric circuits should not be loaded with more than 15 amperes. When fuses blow out the cause should be determined and they should be replaced with fuses of the same or lower ampere rating.
   h. Experiment with static electricity by walking on wool carpet and touching metal objects or another's hand, stroking a cat's fur, combing hair with a rubber comb, rubbing a glass rod with a silk cloth and touching the rod to another object. Note that lightning is caused by static electricity and that lightning

[1] Lynde, Carleton John, *Electricity and Magnetism*, Science Experiences with Ten-Cent Store Equipment. Scranton, International Textbook Company, 1946.

rods are devices to protect buildings from lightning. Why should one refrain from going under a tree, near a pole, near an open door or window, or using any electrical appliance during a thunderstorm? Investigate in science books the causes of lightning and thunder. Discuss how Benjamin Franklin discovered that electricity and lightning are the same.

7. Make a table display of conductors and nonconductors of electricity. As far as possible use actual materials from appliances.

8. Make electricity safety posters. Some titles may be:
   The Iron May Start a Fire
   Dangling Wires Are Dangerous
   In a Bathtub, Hands Off the Switch
   A Penny Makes a Dangerous Fuse
   Beware of Frayed Cords

9. With other classes show an electricity safety movie, or a filmstrip on electricity safety which later can be used in discussion. See list of films on pages 157-70.

10. Dramatize an electrical safety situation, either a play that the pupils have written themselves or one that is available. (See bibliography on dramatizations in Section 5.) This may be used as an assembly program.

11. Have children make scrapbooks of electrical appliances. Paste in pictures from magazines and catalogs and under each picture write a description of
    a. The work done by the appliance
    b. How the same work was done before the appliance was invented
    c. Precautions for safety in the use of this appliance

12. Instead of each child making a scrapbook of many appliances, one appliance could be selected by each child as the basis for a composition. These should be used to study careful writing habits in addition to safety learnings. A simple outline could be set up by the teacher as a basis for all compositions including
    a. The work done by the appliance
    b. Date and by whom invented, if known
    c. How the same work was done before the appliance was invented
    d. The advantages of using this appliance
    e. Precautions for safety in the use of this appliance

13. Statistics on deaths and injuries brought about by electric shock could be used for problems in the arithmetic class. See *Accident Facts,*[1] pages 11, 23, 34-36. Local accident figures could also be used and can usually be procured from fire departments, police departments, utility companies, Red Cross, and local safety councils.

14. Show lantern slides on fire prevention, including electrical safety. A set of 35 slides, 3¼" x 4", *Safety in the Home,* may be secured from the Lantern Slide Division of the Pennsylvania State Library, Harrisburg.

15. Organize "Minute Men" to give safety talks about electricity to other rooms.

[1] National Safety Council. *Accident Facts.* Chicago 11; The Council, 425 N. Michigan Avenue, 1950, 97 pp. 60¢.

4. *Why is Fire* BOTH A FRIEND AND A FOE?

LEARNING ACTIVITIES FOR THE INTERMEDIATE DIVISION OF THE ELEMENTARY SCHOOL

Children in the intermediate grades will be eager to learn fire prevention. As everyone knows, they are great experimenters and are ready at all times to take things apart and to try new experiences. Since they are the older and larger children in the school, they can be depended upon to teach fire prevention in many situations to the younger children. When parents know what is going on they too will be eager to help in this important phase of safety education. The activities suggested here should help children to: (1) observe fire safety rules, (2) participate in the removal of fire hazards, and (3) assist in reporting and controlling fires.

POINTS FOR SPECIAL EMPHASIS

1. Fire can be both a friend and a foe. When it is a foe, it is usually someone's fault.
2. Property loss in fires during 1948 was valued at $715,000,000 by the National Board of Fire Underwriters. This is ten per cent more than the 1947 fire loss and is the largest total for any year on record up to this date. A fire occurs every minute of the day and night.
3. Without its forests what would Pennsylvania be like? Forest fire prevention and reforestation should be of interest to every boy and girl in this State.
4. Approximately twenty persons lose their lives each day by fire. Many of these could be saved if they knew what to do when fire occurs.

5. School fires occur at the rate of seven a day.[1] It is therefore important that schools be as safe as possible. School children should share in this responsibility.
6. When children understand the benefits of fire as well as the dangers of fire, an attitude toward the conservation of human and natural resources is most likely to follow.

[1] National Safety Council. *Accident Facts.* Chicago 11: The Council, 425 N. Michigan Avenue, 1950, 97 pp. 60¢.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. How was fire used and regarded among primitive people? (School encyclopedias are excellent sources of information.[1])
2. How does fire fighting today differ from that of long ago?[2]
3. What is fire and how is it produced?[3]
4. How are the different kinds of fire put out?[2]
5. What are the different kinds of fire extinguishers and how are they used?[4]
6. What were some of the recent fires in the community? What were the probable causes, possible injuries, and the extent of damages in dollars and cents?
7. What are the most common causes of fire?[5]
8. What should one do in a home or in a building when fire breaks out?[6]
9. What are the rules to be observed in a school fire drill?
10. What firesafety precautions should one take when a guest at a hotel?[7]
11. What are the different kinds of fire-fighting equipment used by the local fire company and how are they used to put out fires?[7]
12. What do our forests mean to us today and why must we protect them from fire and other enemies? (School encyclopedias are excellent sources of information.)
13. How can forests be protected from fire?[8]

[1] *Britannica Junior Encyclopaedia,* Volume 6, pp. 69-76. 1950.
Compton's Pictured Encyclopedia, Volume F, pp. 45-59. 1949.
World Book Encyclopedia, Volume F, pp. 2548-2558. 1950.

Put That Fire Out! Boston 10: National Fire Protection Association, 60 Batterymarch St. Single sheet pamphlet illustrating various types of extinguishers for different types of fires. Reproduced in Section IV.

[2] Mitchell, Helen, *Fire Fighters,* Basic Social Education Series. Evanston, Ill., Row, Peterson and Co., 1941.

[3] Parker, Bertha Morris, *Fire Heat,* (Individual booklets), Basic Science Education Series. Evanston, Ill., Row, Peterson and Co., 1941.

[4, 5] *Safeguarding the Home Against Fire.* New York 38: The National Board of Fire Underwriters, 85 John St., 1945. 96 pp. A fire prevention manual for school children.

[6] *Trapped by Fire.* How to Get Out of a Burning Building—The Price of Panic. Boston 10: National Fire Protection Association, 60 Batterymarch St. A single sheet pamphlet.

[7] *Fire Safety Rules for Hotel Guests.* New York 38: The National Board of Fire Underwriters, 85 John St. A small four-page pamphlet.

[8] Wirt, George H. *Lessons in Forest Protection.* Bulletin 35. Harrisburg; Commonwealth of Pennsylvania, Department of Forests and Waters, 1946. 43 pp.

SOME APPROPRIATE THINGS TO DO

1. Have each member of the class make a home inspection report. *The Junior Firefighter's Report,* A *Home Inspection Blank for Schools,* as suggested by the National Fire Protection Association, and *The Home Inspection Blank for School Children,* as approved by the National Board of Fire Underwriters are reproduced at the end of this unit. These may be procured in quantity or may be duplicated for class use.
2. Clip newspaper articles about fires and arrange on bulletin boards or in scrapbooks.
3. Camping experiences or other activities where campfires are involved provide opportunities to teach fire prevention. If the class plans a camping trip, a Camp Self-Inspection Blank[1] will be useful in planning and evaluating for firesafety.
4. Make a simple soda-acid fire extinguisher. See science textbooks for directions. If the experiment involves the use of fire, the teacher's presence is required.
5. With the use of two dry cells and various kinds of wire show how a short circuit takes place. By using steel wire and copper wire in series show that copper wire does not get hot as quickly as steel wire, hence is a better conductor of electricity. Also demonstrate that the size of the wire has something to do with the resistance—the thinner the wire the quicker it will get hot. Apply these principles to a discussion of safety in house wiring, extension cords, and use of appliances such as toasters, irons, hot plates, and others.

[1] *Camp Self-Inspection Blank,* a single sheet check list for firesafety in camps. The National Board of Fire Underwriters, 85 John St., New York 7, N. Y. Free.

6. Have a committee examine home appliances such as toasters, irons, sweepers, oil burners, kitchen stoves, washing machines, electric light cords, vacuum cleaners, and hot water heaters to see if they are of an approved type. Have them also examine fire extinguishers, fire hose, and other fire-fighting equipment to see if they are of an approved type. Have the committee state why it is unsafe to use any appliance or equipment unless it is approved by a recognized agency.
7. Have a committee inspect the school for firesafety and report the findings to the class. Questions to guide the inspection may be as follows:
   a. Are there fire extinguishers at all important locations so that not more than 100 feet of travel is required to reach each?
   b. Do the tags on the chemical extinguishers show that they have been checked within a year?
   c. Do all doors swing outward freely?
   d. If the building is of more than one story, are the fire escapes in good order?
   e. Are the closets free from oily rags or other material that may cause spontaneous combustion?
   f. Are paint and oil cans in storage rooms kept covered?
   g. If there is an auditorium, is the emergency lighting system in working order?
   h. Is the boiler room clean and safe?
   i. Is the fire alarm system in working order?
   j. If there are fire hoses in the building, are they in working order?
   k. Is trash disposed of properly and promptly?
   l. Are fire drills conducted once a month in a satisfactory manner?
   m. Are there obstructions in corridors or at exits that should be removed?

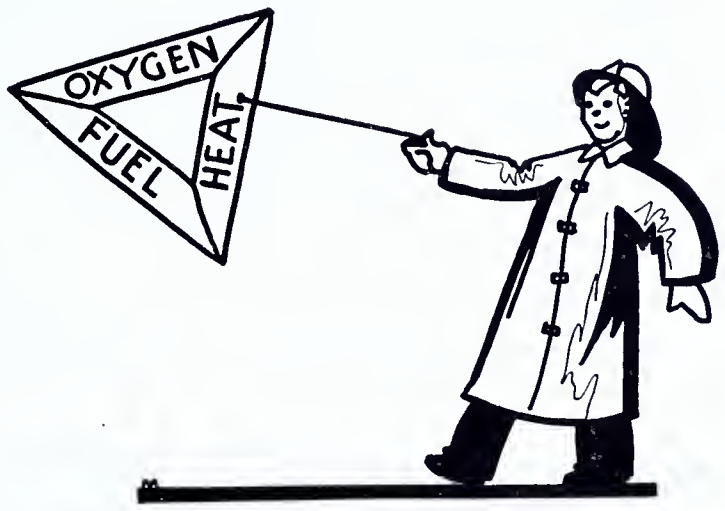
   (See the Self-Inspection Blank for Schools reproduced on pages 17-19 in Section One for additional items.)
8. If in another grade the class has had a trip to a fire house, perhaps a trip to a fire boat or to a State Forest accompanied by a forester or forest ranger would make fire prevention and protection meaningful. Planning a class trip requires definite techniques. (See pages 49 and 50 of *The Pennsylvania Elementary Course of Study*.[1]) Remember that oral and written compositions are always important parts of these activities.
9. Invite the fire chief or a member of the fire company to address the group on fire statistics or to demonstrate the use of equipment. Ask him to wear his uniform so that it will be more impressive to children.

[1] Bulletin 233-B, *The Elementary Course of Study*. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, 1949.

10. Fire Prevention Week is observed each year in October during the week in which the date October 9 occurs. This is an excellent opportunity to arouse interest in fire as a friend and as a foe. If the class is allowed to participate in planning the program, many good learning situations will be developed.[1]
11. Keep a chart in the form of a graph on which is shown the number of fires that occur in the community each month. The graph will point up the danger months.
12. In the study of the community, have individual members of the class make community maps showing location of fire houses, fire hydrants, and fire alarm stations.
13. The alert teacher will highlight fire prevention learnings in the arithmetic class. Fire loss and fire protection statistics, national and local, can be "knit" into many of the arithmetic problems. Counting the rings on tree stumps, estimating the acreage of burnt over areas, and measuring distances between fire hydrants and fire extinguishers are good experiences. When this is done, arithmetic becomes more functional through social uses.
14. Have the class make a mural on the subject, "Fire, Both a Friend and a Foe." Art must not be overlooked as a medium to fix learnings. Before the mural is planned, individual members of the class can make posters, some on "Fire as a Friend" and others on "Fire as a Foe." The ideas thus developed would culminate in the mural. An excellent reference for the teacher on making posters is given below.[2]

[1] *Fire Prevention Week Handbook,* Tenth Edition. Boston 10, The National Fire Protection Association, 60 Batterymarch St., 1945. 15¢.

[2] Lemos, John de. *Planning and Producting Posters,* Worcester, Mass., The Davis Press, Inc., 1943. 54 pp.



15. As children work with fire prevention activities they will encounter many new vocabulary terms such as:

arson	hydrant
combustion	inflammable
extinguish	nonflammable
fire resistant	oxidation
fire retardant	smothering
flammable	spontaneous
friction	Underwriters Laboratories
hazard	vaporizing

The list can be extended and can be made part of the spelling activities. Certain members of the class could compile a dictionary of fire prevention terms. (See reference for an extended list of fire terms.[1])

16. Children like to write and dramatize their own plays. There could be no topics more interesting or important than those having to do with what should be done in case of fire at home, in public places, in the woods, or in preventing fires. (See Section Five for available plays suitable for the age group.)

17. Arrange to show motion picture films, slides or slide films on fire prevention. (See general bibliography for a list of titles and sources in Section Five.)

[1] *Curriculum Guide to Fire Safety.* Bulletin No. 8. Federal Security Agency, U. S. Office of Education, Washington, D. C., Superintendent of Documents, Government Printing Office, 1946. 31 pp. 10¢.

Effective Fire Defense Helps National Defense

HOME INSPECTION BLANK FOR SCHOOL CHILDREN

(Approved by The National Board of Fire Underwriters)

Schools, fire departments, chambers of commerce, or other local institutions are given full permission to reproduce this model form in sufficient quantities to cover their respective communities.

The teacher is requested to give one of these sheets to each of her pupils to take home. The questions should be answered by the pupil with the help of the parents and returned to the teacher on the following day. The teacher should take up the sheets when properly filled out *and turn them over to the fire chief.*

1. Name..... Street and No.....

   Town .....
2. Is there any rubbish, such as old papers, broken furniture, etc., in the attic?.....
3. Is there any rubbish or scattered kindling in the basement or cellar?.....
4. Is there any flammable rubbish in the yard?.....
5. Have weeds on vacant property been cut and removed along with dry leaves?.....
6. Are floors under hot stoves protected by metal, brickwork or cement?.....
7. Are walls, ceilings and partitions protected from overheating of stoves, furnaces and pipes? .....
8. Have you metal containers for ashes and are they promptly disposed of?.....
9. Do you keep your matches away from heat and out of the reach of children?.....
10. Do you have an ample number of ash trays throughout the house?.....
11. Are all fireplaces equipped with effective spark screens?.....
12. Are the chimneys in good repair?.....
13. When were they last cleaned?.....
14. Do stovepipes pass through attic or closets?.....
15. If there are any unused stovepipe holes, are they covered with paper or other combustible material?.....
16. Do you ever endanger your own life and possibly others by using gasoline for dry cleaning purposes?.....
17. If your house is oil heated, is the burner oiled and cleaned before each heating season? .....
18. If you have gas connections made with rubber tubing, are there shut-off valves at end of pipe or only at end of rubber tubing?.....
19. Name all the purposes for which kerosene is used in your home.....
20. If you use a "dustless" oil mop, do you keep it in a safe place when not in use? .....
21. If you use an electric pressing iron, is it equipped with a metal stand and either a heat control or a safety pilot light?.....
22. Are there any frayed electrical cords or temporary wiring connections?.....
23. Do you know how to turn in an alarm?.....
24. Where is the fire alarm box nearest your home?.....

CHECK UP TODAY—TOMORROW MAY BE TOO LATE

JUNIOR FIRE FIGHTER'S REPORT

(A Home Inspection Blank for Schools Suggested by the National Fire Protection Association)

TO ALL JUNIOR FIRE FIGHTERS:

How would you like to be a fireman for a day? Firemen have to prevent fires as well as put them out and one of their most important jobs is to look for places where fires might start in such buildings as your own home. After your teacher gives you this blank, take it home and ask Mother or Dad to go with you on a complete trip around your home, cellar-to-attic, backyard, and garage to look for fire dangers. When you have finished your inspection and made your report, just like a regular fireman, ask your parent or guardian to sign it and return it to the teacher the following day. Mother and Dad may be surprised at the number of fire dangers that you may be able to point out to them and you can just bet that once they know about them, it won't be long before they correct them. Let's show the other grades in our school and the other schools in our town what a fine job *we* can do!

Name .....

School..... *Grade*.....

Street and Number..... *Town*.....

1. Is there any rubbish such as old papers, broken furniture, junk, etc., in the Attic..... Basement..... Closets..... Garage..... Yard.....
2. How often do you regularly dispose of rubbish?.....
3. Are walls, floors, ceilings, protected from overheated stoves, pipes, furnaces?.....
4. Are hot ashes kept in covered metal barrels?.....
5. Are matches kept in metal boxes away from heat and small children?.....
6. Do you ever use gasoline for cleaning or kerosene for starting fires?.....
7. Do you have any frayed electric cords in your home?.....
8. Ask Dad to go with you and inspect the fuse box and see if fuses are proper size (15 amperes) .....
9. Are all mops hung up and oil rags kept in metal containers?.....
10. Does Mother have an electrical control on her electric iron to prevent overheating? .....
11. Do you have any fire extinguishers in the house?.....
    When were they last charged?.....
12. Does Dad have plenty of ash trays in the house?.....
13. Do stovepipes pass through combustible partitions such as through attics or closets? .....
14. Are chimneys in good repair and cleaned once a year?.....
15. Do you have screens for all fireplaces that fully cover openings?.....
16. If you roof is of wooden shingles, do you have a spark arrester on the chimney? .....
17. What would **you** do if fire broke out in your house?.....
    .....
18. Where is the fire alarm box nearest your home?.....
    What is the Fire Department's telephone number?.....
19. Do you know how to turn in a fire alarm?.....If you do describe how.....
    .....If not ask the teacher to tell you
    .....
20. If you have a gas stove, are curtains or cloths hanging near enough to catch fire? .....

(To be signed by parent or guardian)

I assisted in the inspection of the above property.....

(Signature)

THIS IS A COMMUNITY PROJECT IN THE INTEREST OF REDUCING LOSS OF LIFE AND DESTRUCTION OF PROPERTY BY NEEDLESS FIRE

SECTION FOUR

TEACHING FIRE PREVENTION IN THE SECONDARY SCHOOL

General Principles

Secondary schools are now attempting to organize their instructional programs to meet the imperative needs of youth for life as citizens in American society. The National Association of Secondary-School Principals has published "The Ten Imperative Needs of Youth" on numerous occasions. They can be stated briefly as work, health, citizenship, home, thrift, science, beauty, leisure, other persons, and communication skills.[1]

To achieve these goals it is necessary to organize learning situations which are challenging and meaningful to youth. This means learning experiences based on the principles of learning by doing or learning by trying—solving those problems of present-day living which must be faced eventually by youth.

Fire protection, prevention, and safety will have meaning to youth in relation to his needs as he grows in civic responsibility. As he explores problems of the protection of property and life from fire, he will develop the proper attitudes, habits, and skills. What a student is and does is as important as what he knows.

Fire protection and fire prevention education will meet the needs of some youth as a future vocation. Many will follow this field as a hobby and a leisure time pursuit. A few will probably contribute through scientific knowledge, but the great majority will need these learnings as a matter of personal protection as well as the protection of society.

Educators do not agree as to any one best method for teaching any one particular subject. There are: the socialized recitation, the question and answer method, experience units method, the contract method, democratic action—centered method, to mention a few. The diversified character of the secondary school, both public and private, would preclude any such prescription. The point is that fire prevention education must not be neglected in the secondary school.

[1] *The Bulletin*, National Association of Secondary-School Principals. Vol. 31, Number 145, March 1947; Vol. 32, Number 154, April 1948; Vol. 33, 164, October 1949.

HOW TO *use* THE LEARNING ACTIVITIES WHICH FOLLOW IN THIS SECTION (ILLUSTRATIVE UNITS)

1. Examine all of the illustrative units so as to become acquainted with the numerous possibilities for teaching fire prevention in all areas of the secondary curriculum.
2. Make notes or check those suggested experiences and procedures under all the various Learning Activities that can be used in a particular subject. Then add or "knit" the items into existing outlines or units of the particular subject so as not to overlook them at the time they should be introduced.
3. Experience Units can be organized from the Learning Activities and taught directly for a specified period of time to stimulate interest, for emphasis, or for expediency. However, instruction in fire prevention must not be confined only to a time block of the year's program and then forgotten.
4. Refer to the Learning Activities for things to do or talk about when interest is high or when an opportunity occurs to teach fire prevention.
5. Refer to the reference shelf of fire prevention books and materials which has been suggested for each high school library. Use the bibliography in this bulletin to build these references.

1. How can Art CONTRIBUTE TO FIRE PREVENTION?

LEARNING ACTIVITIES FOR ART CLASSES

Each year approximately 11,000 persons, more than half of them women and children, lose their lives by fire, while the nation suffers a property damage loss of over one and three quarters million dollars a day.

In connection with this staggering fact it should be emphasized that agitation for a program which will result in a permanent improvement in local conditions is a most important part of any school activity.

Perhaps no other medium can so forcefully bring to the attention of the public the grave necessity for caution against carelessness in the handling of combustible materials as can an eye-catching poster aimed at reducing losses resulting from such carelessness. The bibliography for this unit lists a variety of clever posters prepared by skilled artists which may well serve as a guide in the preparation of posters designed to promote a campaign on the local level. It is felt, however, that the preparation of such materials might well be taken as a project by the local art department, wherein the benefits will be at least threefold:

a. Develop skills in layout, lettering, and composition on the part of pupils. A good poster is simple and forceful. It has one and only one purpose and tells its story convincingly, with an immediate, definite message for those who see it.

b. Stimulate a greater community awareness of the problem or of the local campaign under promotion. Parents and community patrons take great pride in the work of local pupils, resulting in a greater response to the campaign.

c. Foster a lifelong appreciation on the part of pupils for a campaign which they personally help to promote. "Once a booster, always a booster" is especially applicable to pupil campaigners.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. What campaigns against carelessness as related to fire prevention are promoted annually on a nation-wide basis? on a state-wide basis? on a local basis?
2. What constitutes a good calendar of activities for such campaigns as National Fire Prevention Week? Forest Fire Protection Campaign? Local Clean-up Week?
3. What art contests, conducted in such campaigns, are open to pupil participation? How does one enter? What constitutes a good exhibit? What are the awards?
4. Are there locally organized sportsmen's groups in the community? What are their needs in regard to posters relative to game protection? Forest fire prevention? Do they sponsor a local contest? Do they distribute and post the work of the local art department?
5. Does the local volunteer fire department have need for art-work assistance to promote local clean-up or fire prevention campaigns? (For rural and semi-rural school areas, see the Farm Survey form included in the unit on Vocational Agriculture in this bulletin. This is a good project for an art department.)
6. Is there a need for telephone directory markers, ready-reference memos, or other home devices which assist in summoning local fire departments by making the telephone numbers of fire companies and their key personnel immediately available in emergencies?
7. Are the Fire Drill directives posted in each room of your school building? Are they clean, neat, attractive, and eye-catching? Can you design a better one?

SOME APPROPRIATE THINGS TO DO

1. Compile a calendar of national, state, or local activities for the school year which features such campaigns as Fire Prevention Week, Clean-Up Week, Game Protection Campaigns, for which the school may be asked to make art posters. Key such programs to the school schedule well in advance of the date scheduled.
   (See Reference Nos. 1 and 3, page 66, also local papers, sportsmen's groups, etc.)
2. Post complete information on the art bulletin board relative to awards open to pupil participation with entrance regulations and sample materials. (See Reference Nos. 1 and 3, page 66.)
3. Exhibit art work relative to such campaigns in various places, including school fair exhibits, store windows, and fire halls.
4. Contribute choice posters, cartoons, and slogans to local newspapers in keeping with such opportunities as National Fire Prevention Week.
5. Prepare a telephone directory insert or desk memorandum suitable for home use, including pertinent information of value in summoning the local fire department. Sample copies submitted to local fire companies or community advertisers meet with quick acceptance.
6. Redesign and/or renew classroom fire drill posters. Consult the school's fire drill plan for accuracy.
7. The work of various departments within the school may be correlated in a fire prevention program. Consult the resource units in home economics, vocational agriculture, science, social studies, and health for pupil activities wherein given pupils may carry their work to completion in many departments simultaneously.
8. Suggested motivations for class discussion preceding art activities: "The time our barn burned," "The day Smith's house burned down," "The largest fire I ever saw and the harm it did," "How we can prevent our barn, garage, house, or store from burning," "How a fire prevented Bill Jones from going to college," "What a little match can do," "We stamp out our camp fires," "Rubbish invites fire."

REFERENCES FOR ART ACTIVITIES

1. *Fire Prevention Week Handbook,* Tenth Edition. Boston 10, The National Fire Protection Association, 60 Batterymarch St., 1945, 12 pp. 15¢.

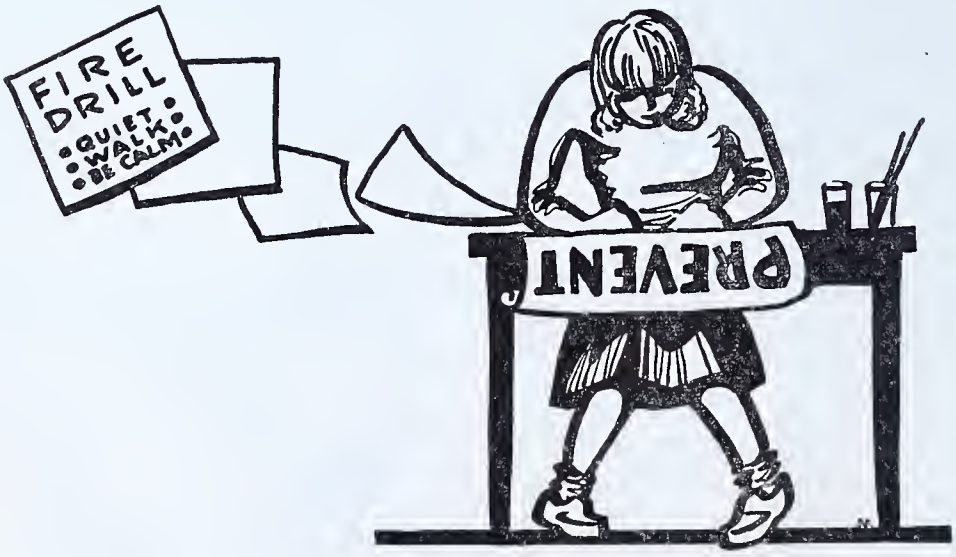
2. Lemos, John de, *Planning and Producing Posters.* Worcester, Mass., The Davis Press, Inc., 1943, 54 pp.

3. *Our Most Shameful Waste.*

   A folder of posters, newspaper ads, bookmarks, blotters, publicity material, and campaign procedures. This folder with pockets for insert materials and sample posters features the 1950 campaign to prevent forest, wood, and range fires. A public service project of the Advertising Council, Inc., U. S. Government Printing Office, Washington 25, D. C. Form No. 858868. Can be secured from Department of Forests and Waters, Harrisburg, Pennsylvania. (Reproduced annually.)

4. *Sample posters and factual materials:*
   a. The National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.:
      (1) Poster—*Fire Prevention Week.*
      (2) Cartoon leaflet—*This Will Burn You Up.* Collection of some fourteen cartoons illustrating carelessness in fire prevention and controls. 1948, Series G-38-500M.
      (3) Other posters available to teachers and key people.
   b. *Fire Foibles*—booklet of clever cartoons on hazards of carelessness. The work of Abner Deen, well known American artist, by Aetna Insurance Co., No. G-40-100M.
   c. The National Board of Fire Underwriters, 85 John St., New York 38, New York:
      (1) Illustrating booklet—*Stop Fires, Save Jobs.*
      (2) Poster—*Warning, Stop Fires.* Shows four common origins of fires.
      (3) Other posters available to teachers and key people.

5. *Course of Study in Art Education for Elementary and Secondary Schools,* Bulletin 262. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, 1951.



2. *How does* COMBUSTION TAKE PLACE AND HOW CAN IT BE CONTROLLED?

LEARNING ACTIVITIES FOR CHEMISTRY, PHYSICS, CONSUMER SCIENCE, AND GENERAL SCIENCE CLASSES

The study of fire prevention as related to the field of science must of necessity concern itself with the principles of combustion, as well as with the principles of extinguishing fires. For all practical purposes combustion may be considered to be a chemical reaction in which a combustible material combines with oxygen at a rate rapid enough to produce heat and light. Ordinary atmosphere contains sufficient oxygen to support combustion. Combustion will result whenever a combustible material is heated to its ignition temperature in the presence of oxygen.

Fire prevention measures, then, must include precautions against the evaporation of flammable liquids, against the building up of temperatures which constitute the ignition point of materials, and against improper insulation of electrical conduits and fixtures. They should also include the fireproofing of fabrics which burn readily otherwise, the ready access to fire extinguishers, instruction in their adaptabilities and uses, and the developing of an over-all consciousness on the part of everyone in regard to handling of combustible materials as well as a working knowledge of fire control.

PROBLEMS FOR DISCUSSION AND STUDY

1. What constitutes a flammable gas, and under what conditions will ignition occur?
2. How may flammable liquids be handled to prevent evaporation and consequent ignition?
3. What types of dusts lend themselves readily to explosion; what precautions are taken against such hazards?
4. Under what conditions does spontaneous heating occur? How may such heat accumulation be avoided?
5. What are the principles used in making materials fire retardant? How are such materials processed?
6. What precautions may be taken in regard to these hazards of electrical circuits: arcing? sparking? overheating? overloading? drying and cracking of insulation?
7. How may charges of static electricity in buildings, vehicles, etc. be harmlessly avoided?

8. What are the principles which are built into such fire-detectin devices as the fixed-temperature device, the rate-of-temperature rise device, the thermo-sensitive element, and the continuous-lin detector? Where might they be used?
9. How may each of these basic principles of fire extinguishing b employed: cooling? smothering? List or show several demonstra tions.
10. What are the correct approaches to fires of the following origins chemical? gaseous? electrical? spontaneously heated materials smoldering fabrics?

(See Reference No. 1, page 80, for any of the above problems.)

SOME APPROPRIATE THINGS TO DO

1. Demostrate ignition by each of the following methods:
   a. *By conduction*—a copper rod with one end placed in a Bunsen flame will soon become hot enough at the other end to ignite waste.
   b. *By chemical action*—science teachers may have various chemical formulas to produce combustion. A bit of sulphuric acid placed in water will demonstrate the heat resultant from chemical action.
   c. *By friction*—the ancient principle of rubbing or turning briskly a piece of hard wood against soft wood will produce the ignition temperature. Many effective demonstrations may be used for this purpose.
   d. *By percussion*—a simple cap from pistol detonated in the presence of waste or fumes will serve to illustrate this principle.
   e. *By spontaneous ignition*—damp, fresh, green vegetation stored overnight in a closed glass container will produce enough heat to be evident the following day. Ignition may result from paint or oil-soaked rags, but such demonstrations must not be conducted overnight in school laboratories. Placing of such materials well away from buildings may be feasible.
   f. *By radiation*—a simple double convex lens will quickly ignite a piece of paper.
2. Show proper containers for the storage of combustible liquids. Sample containers may be secured on loan from local hardware stores, service stations, or fire stations. (See Reference No. 5, page 80.)
3. Demonstrate the flameproofing of a fabric. There are many methods. One satisfactory method is as follows. The preparation of the bulk mixture is printed below. Demonstrations may work with smaller quantities. (Also see Reference No. 2, page 80.)

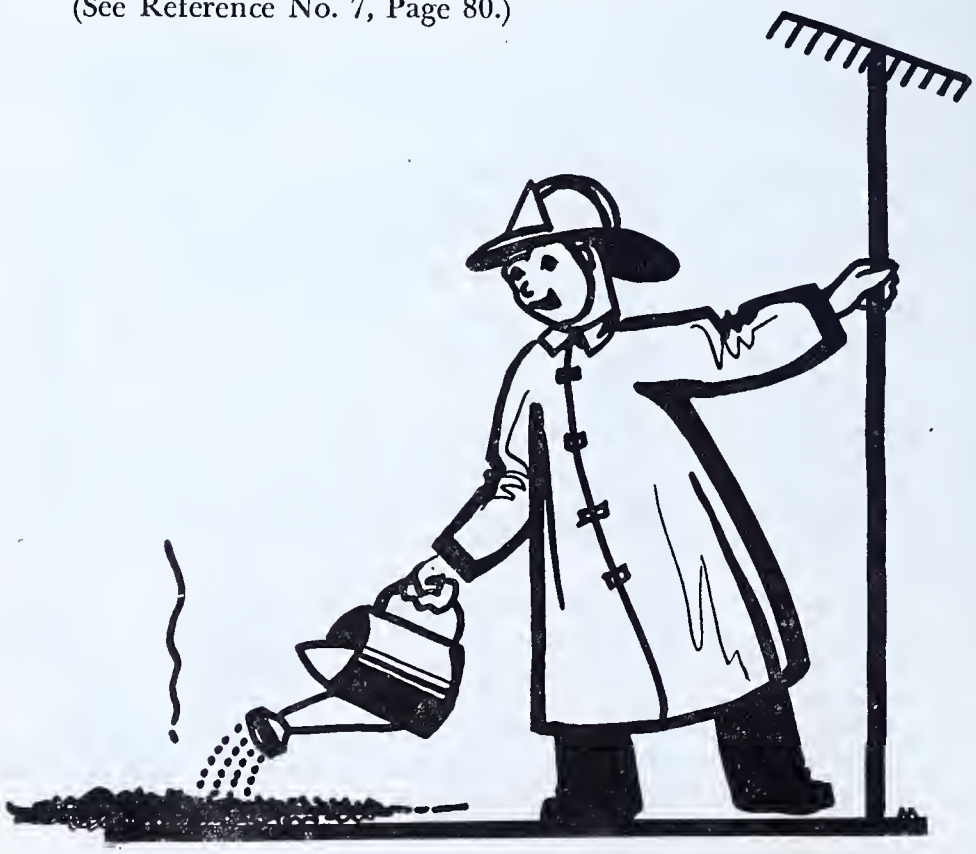
FLAMEPROOFING MIXTURE

8 lb. sulphate of ammonia	1.7 lb. of pure borax
2.5 lb. of carbonate of ammonia	2 lb. starch
3 lb. boric acid crystals	100 lb. water

Dissolve the material in hot water and steep the fabric in the hot solution until thoroughly impregnated, after which drain and dry thoroughly. Of course such treatment lasts only until the material is laundered; then it must be reprocessed. Ingredients are readily available and do not harm fabrics. A water insoluble preparation is available but includes chlorinated paraffines, generally hard to obtain.

4. The various electrical conductors such as non-metallic sheathed cable, B-X, black insulation, rubber coat, and others available from the local electrical service shops should be demonstrated as to their various uses.
5. There may be benefit in illustrating samples of ill-adapted electrical wiring, worn appliances, or other violations of the electrical code. (See Reference No. 3, page 80.)

6. Demonstrate the application of a simple thermostat as applied to heat detection in buildings. By applying heat to a simple ether wafer thermostat it is possible to close an electrical circuit which can be wired to ring an alarm, turn on a motor water pump or perform some other action which will sound an alarm or take steps toward extinguishing a fire.
7. Demonstrate the operation of a sprinkler system by melting a metal plug of material with a low melting point, such as magnesium or tin, attached to a supply of water which flows when plug is melted by a match.
8. Demonstrate the effect of "Water Wet" on a piece of cotton which otherwise would float on water.
   Write for information to *Firemen Magazine,* 60 Batterymarch St., Boston 10, Massachusetts.
9. A demonstration of each of the following types of fire extinguishers should be made. A paper fire may safely be ignited on a concrete walk away from the building. Use the foam extinguisher, carbon dioxide extinguisher, water mist, blanket smothering devices, carbon tetrachloride base vaporizing liquid extinguisher, and steam if available. Each should be studied and explained. (See Reference Nos. 1 and 4, Page 80.)
   Request pieces of equipment from local fire department.
10. Have members of the class set up simple experiments on "heat." (See Reference No. 7, Page 80.)



DEMONSTRATIONS and EXHIBITS[1]

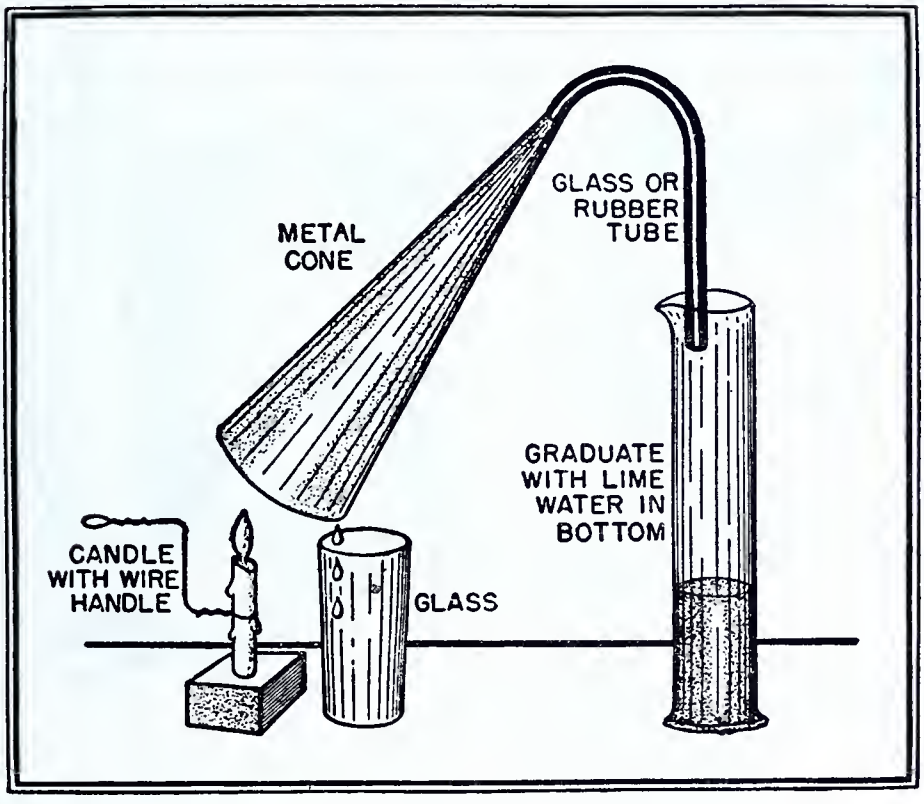


FIG. 1. Products of Combustion

Figure 1

Fix a metal cone at an angle so that flame and smoke from a candle will rise into it. Place a glass under the lower end of the cone mouth. From the small end of the horn run a tight tube (preferably glass) into the top of the graduate, which contains a small amount of lime water. The products of combustion will rise into the cone. The water will condense on the side and drip into the glass. The CO_2 and nitrogen will be expelled into the graduate. The CO_2 will cause the lime water to become cloudy. After the process has progressed for a few minutes, move the candle by the wire handle into the gas space in the graduate. The CO_2 will extinguish the flame.

[1] Taken from *Fire Prevention Education—The School Program of Fire Prevention and Fire Protection,* Center for Safety Education, New York University, The National Board of Fire Underwriters. Reproduced by permission of The Board.

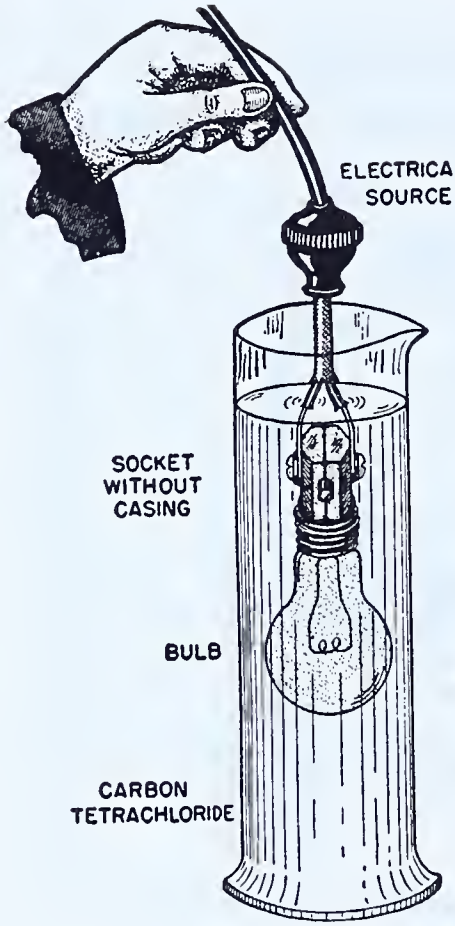


Fig. 2.
Electrical Conductivity of
Carbon Tetrachloride

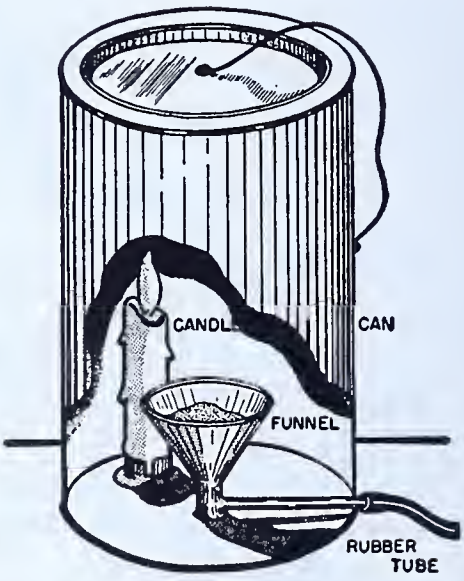


Fig. 3.
Dust Explosion Apparatus

Figure 2

This simple equipment shows the poor electrical conductivity of carbon tetrachloride.

A socket is stripped of its protecting casing as are the wires leading to it. Care must be exercised to keep the wires apart to avoid shorting. The socket and bulb are immersed in carbon tetrachloride and the current turned on. The insulating quality of the liquid becomes apparent. Remember, carbon tetrachloride is anesthetic. Good ventilation is important.

Figure 3

Various dusts, such as starch, flour, aluminum, etc., are easily exploded by means of a tin can containing a lighted candle and a metal funnel connected to a rubber tube on the outside and with a captive lid. A small amount of material is placed in the funnel. A sudden blowing through the tube results in the explosion.

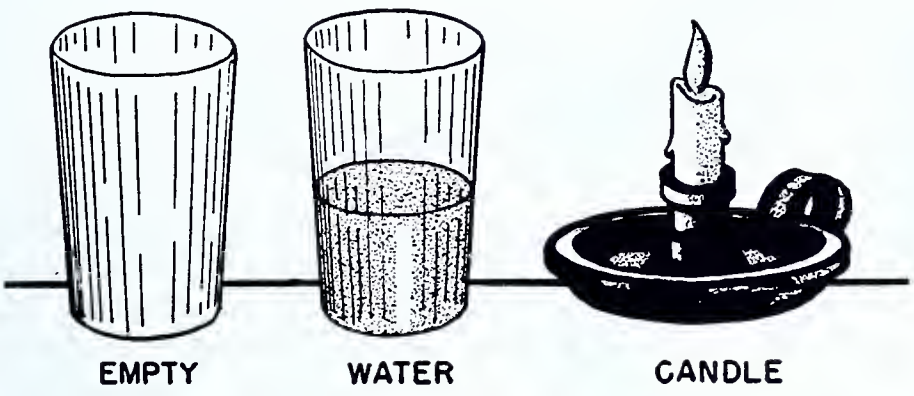


FIG. 4. Extinguishment

Figure 4

The simplest method of illustrating both smothering and cooling is the use of a lighted candle and two water tumblers, one empty. Inversion of the empty glass will extinguish the candle by smothering, while a little water illustrates extinguishment by cooling.

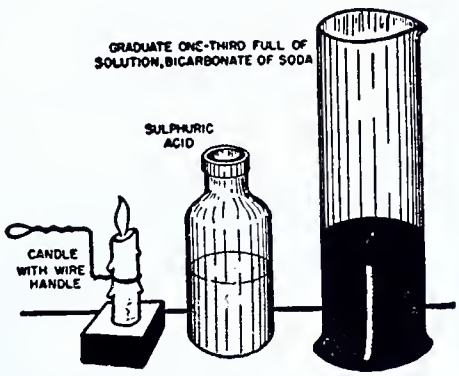


FIG. 5. Cooling (Soda and Acid)

Figure 5

This experiment explains the action of a soda-and-acid extinguisher. Pour acid into soda solution and draw attention to gas formation, explaining how the pressure forces water out of device. Lower lighted candle into the gas space in the graduate, showing that the gas therein is CO_2.

It is explained, of course, that the cooling action of the water is what extinguishes the fire; the CO_2 has almost no part in the practical extinguishment job of the soda-and-acid extinguisher.

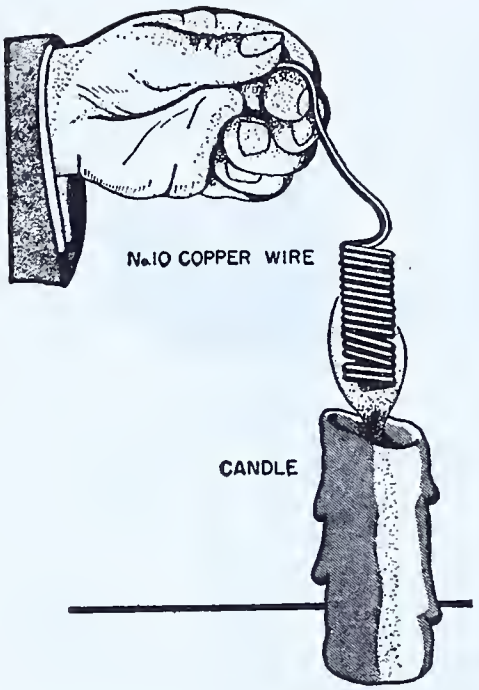


FIG. 6. Cooling

Figure 6

Lower over a candle flame a spiral made by wrapping some No. 10 copper wire on a pencil. The flame goes out because the wire absorbs the heat so rapidly it reduces the temperature below the ignition point, without cutting off the air supply.

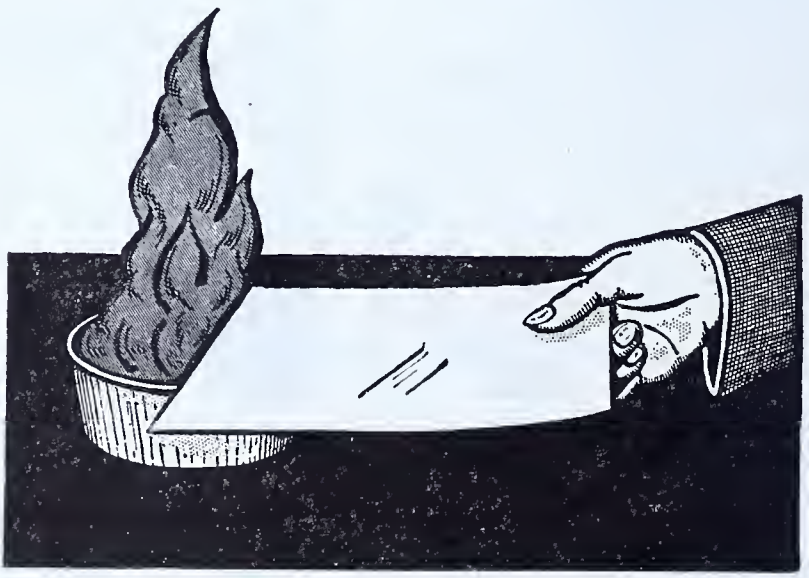


FIG. 7. Smothering (Value of Quick Action)

Figure 7

Slide a blotter quickly over the top of a dish in which alcohol is burning. The edge of the dish must be even and the blotter must be held firmly and evenly on it. Remove blotter and relight the fire. Now slide the blotter slowly forward. The edge will be consumed.

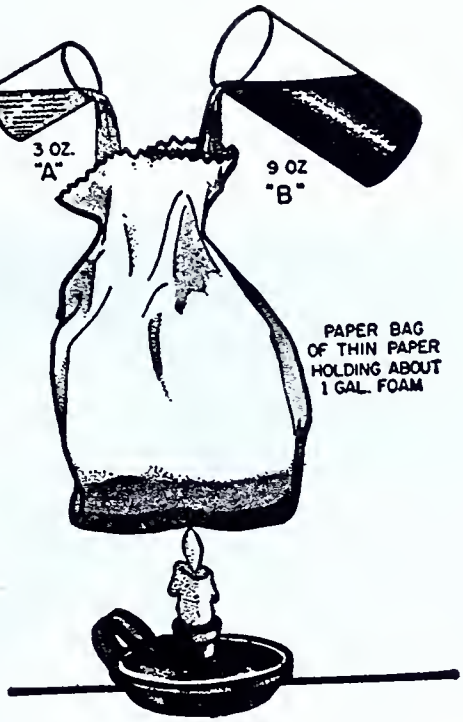


FIG. 8. Characteristics of Foam

Figure 8

Here is demonstrated the ability of foam to fill an irregular container—as well as cooling effect of foam.

Mix the solutions for a 2½-gallon foam extinguisher; pour 9 fluid ounces of "B" solution and 3 fluid ounces of "A" solution into a paper bag holding a little over 1 gallon.

Hold the bag over a candle flame. The foam inside will keep the paper from burning.

The chemicals used are bicarbonate of soda, a foamy stabilizing agent dissolved in water for the outer compartment, and aluminum sulphate dissolved in water for the inner cylinder. The reaction between the aluminum sulphate solution and the solution of sodium bicarbonate is:

$$6NaHCO_3 + Al_2(SO_4)_3 \cdot 18H_2O = 6CO_2 + 3Na_2SO_4 + 2Al(OH)_3 + 18H_2O$$

The reaction produces carbon dioxide gas in the form of bubbles, with a light precipitate of aluminum hydroxide in the bubble film. A foam stabilizing agent is added to toughen the bubble structure.

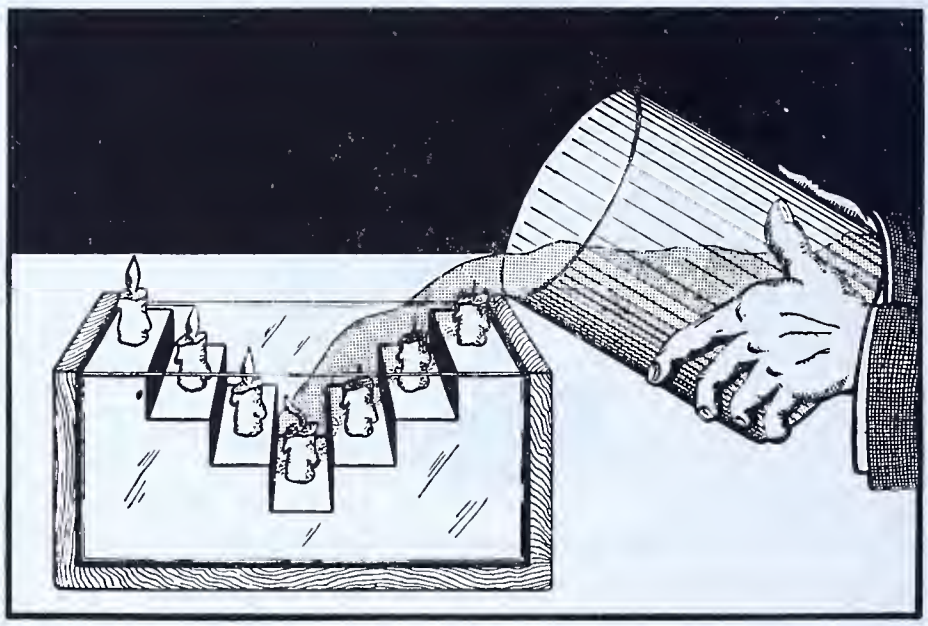


FIG. 9. Smothering (Carbon Tetrachloride)

Figure 9

In the jar, carbon tetrachloride is poured slowly on a piece of burning newspaper. The smoke makes the vapor visible. The paper is withdrawn when the vapor is formed.

Into one end of the apparatus with glass sides is poured the vapor as shown. The vapor flows down the steps and then fills up the apparatus, extinguishing the candles on the opposite steps.

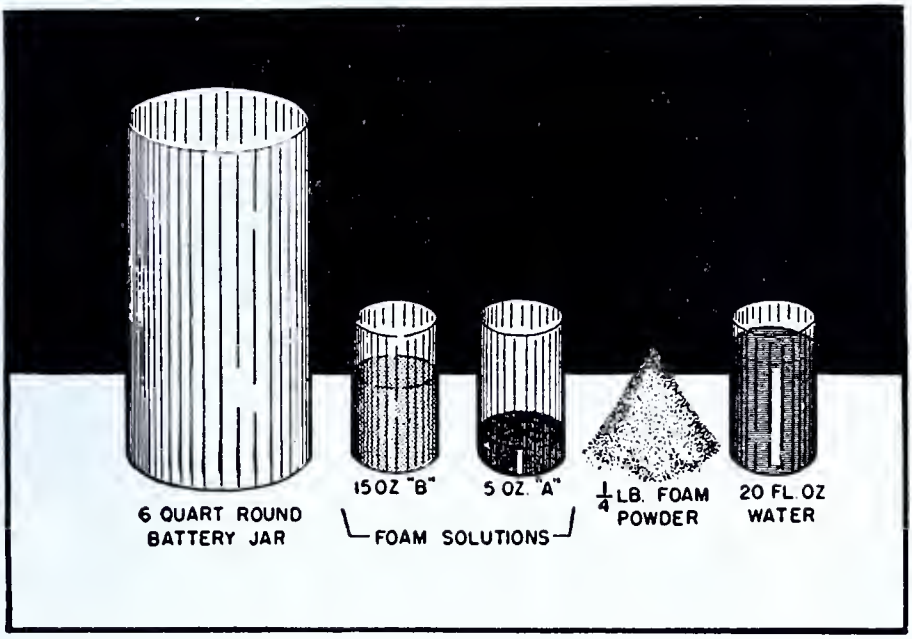


FIG. 10. Smothering (Foam)

Figure 10

This equipment shows foam made by mixing prepared solutions or by adding water to mixed powder.

a. Mix the solutions for a 2½-gallon foam extinguisher; take 5 fluid ounces of "A" solution and 15 fluid ounces of "B" solution and mix in a 6-quart jar. Wash out jar and dry it.

b. Put ¼ pound of foam powder (for foam hopper) in bottom of jar. Throw 20 fluid ounces of water violently into the jar and shake the jar roughly for a second or two.

WHICH EXTINGUISHERS ARE BEST FOR THE DIFFERENT KINDS OF FIRE?[1]

THE fact that there are different kinds of fire and different types of extinguishers seems complicated at first. But actually, it's all quite simple, once you get a picture of the various extinguishers in your mind and know what they contain. To make things even simpler, every extinguisher in a public place, in a factory, on a bus, and so on, is usually of a type that is right for the kinds of materials being protected.

Most extinguishers are made in several different sizes, according to the size of the "hazard" they may be selected to protect. However, here only the most commonly used sizes will be discussed.

EXTINGUISHERS WHICH MAY BE USED ON CLASS A (ORDINARY COMBUSTIBLES) FIRES ONLY

THE SODA-ACID EXTINGUISHER contains water in which bicarbonate of soda has been dissolved. The bottle in the top of the extinguisher contains sulphuric acid. When you turn the extinguisher upside down, the chemicals mix, forming a gas which forces the water out of the extinguisher. The capacity of most extinguishers of this type is 2½ gallons, and they provide a 30 to 40-foot stream that lasts for about a minute.

The extinguisher is carried to the fire by the ring at the top. To operate it, first take the nozzle between the thumb and forefinger of the right hand. Then, still holding the nozzle, and with the other fingers of your right hand hooked around the top handle. lift the extinguisher and grab the handle at the bottom with your left hand. Now turn the extinguisher over, releasing the top handle but not the nozzle. The extinguisher then hangs upside down from your left hand, and your right hand is free to direct the stream on the fire. For some people, it may be easier to set the extinguisher on the floor, keeping the nozzle in your right hand.

THE GAS CARTRIDGE EXTINGUISHER looks very much like the soda-acid. It also operates the same way, except that after you turn it over, you have to bump it on the floor. It contains plain water, or water with anti-freeze chemicals, and, in its neck, a cartridge of compressed gas. When the extinguisher is turned upside down and the plunger at the top is bumped against a hard surface, a pin is driven into the cartridge, releasing the gas which forces the water out through the hose.

THE PUMP TANK is made in two sizes, 2½ gallons and 5 gallons. Plain water is used in it, or anti-freeze chemicals can be dissolved in the water to prevent freezing. The pump tank is carried to the fire by the top handle. The nozzle is held in one hand while the pump is operated with the other. By pumping hard, you can make the stream travel for a distance of 30 to 40 feet. The tank can be refilled by someone else while it is in use, but you cannot use it easily while carrying it. Another type of pump tank is designed to be carried on the operator's back and is particularly useful where mobility is essential.

EXTINGUISHERS WHICH MAY BE USED ON CLASS A AND CLASS B FIRES (BUT NOT ON CLASS C FIRES)

THE FOAM EXTINGUISHER is shaped exactly like the soda-acid and is operated in exactly the same way. But it is different inside and it contains different chemicals. It contains a solution of water, bicarbonate of soda, and of a foam-making ingredient in the outer part of the extinguisher. The inner chamber contains water and aluminum sulphate.

When the extinguisher is turned upside down and the chemicals mix, a stream that looks like foam comes out of the extinguisher hose. The extinguisher contains about 2½ gallons of liquids, but it generates about eight times that amount of foam.

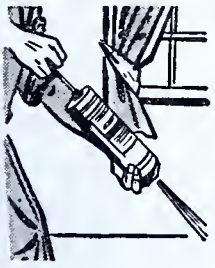
[1] Reproduced by permission of the National Fire Protection Association.

The foam blankets and smothers fire and it is therefore recommended for flammable liquid (Class B) fires. But since the extinguisher contains a great deal of water it is effective also on fires in ordinary combustibles (Class A materials).

THE LOADED STREAM extinguisher looks and operates exactly like the gas cartridge extinguisher; but instead of plain water, it contains a special solution of an alkali-metal salt. For some reason that no one quite understands, the solution is effective on Class B fires as well as on Class A fires.

EXTINGUISHERS WHICH MAY BE USED ON CLASS B AND CLASS C FIRES

These extinguishers which do not contain water can be used on small surface fires in Class A materials, but they are not as effective on fires of this type as they are on Class B fires. They are the only ones which may be used safely on Class C fires. The effect of these extinguishers is to blanket and smother the fire.



THE VAPORIZING LIQUID EXTINGUISHER is one of the most familiar types. It contains specially treated carbon tetrachloride and is operated by pumping the handle or in certain models by turning a hand-wheel. The most common size contains a quart of liquid and the stream will travel twenty feet or more for about thirty seconds.

THE CARBON DIOXIDE extinguisher has a horn-like nozzle through which carbon dioxide gas escapes when a valve is opened. The gas blankets and smothers fire. It is also a non-conductor of electricity.

The extinguisher has a maximum range of about eight feet, but best results are obtained by playing the discharge as close to the fire as possible, moving the discharge horn slowly from side to side.

THE DRY CHEMICAL extinguisher is available in several styles, some quite distinctive in appearance, others resembling the gas cartridge type. All styles depend upon a small cartridge of carbon dioxide to expel the dry chemical through the hose. The extinguisher is operated by releasing this gas by a simple motion depending on the model and directing the stream of dry chemical by means of the special nozzle. The discharge lasts for fifteen to thirty seconds and will travel for a distance of twenty to twenty-five feet.

HOW CAN YOU FIGHT A SMALL FIRE SAFELY?

The first thing to do when a fire breaks out is to collect your wits and size up the situation. That won't take more than a few seconds, and it may keep you from doing some foolish or useless thing.

After notifying the fire department, go into action with your extinguisher. Take a position near a door, so any sudden burst of flame cannot trap you. If possible, stand so the smoke and fire are carried away from you by any drafts. If the fire is in a small room or closet, stay outside and aim in at the fire. Take advantage of the length of the stream to remain at a distance.

Always aim directly at the thing that is burning (not at the smoke or flame), except in the case of a flammable liquid where it is important not to splash the liquid which may spread the fire. If cooking fats, gasoline or other Class B materials are burning in a container, aim foam or vaporizing liquid against the inside of the container just above the liquid level, carbon dioxide or dry chemical along the surface.

If the fire is spread out over the floor or ground, start at one end, preferably at the point nearest you, and then sweep it out completely as you go. If the fire is traveling up a wall, put out the fire at the bottom first and then follow it up.

In the case of Class C fires, it is desirable to turn off the electric current, if you can, so as to prevent re-ignition; but by using the proper type of extinguisher, you will not be in danger of an electric shock if you cannot turn off the current.

Many materials give off poisonous gases when they burn, so move about to avoid inhaling the smoke. When the fire is out, open windows to air the place. If you cannot air the place out quickly and easily, get out and stay out until the smoke has cleared away.

REFERENCES FOR CHEMISTRY, PHYSICS, CONSUMER SCIENCE, AND GENERAL SCIENCE

1. Crosby, Fiske and Forster, *Handbook of Fire Protection,* Tenth Edition, Boston 10, National Fire Protection Association, 60 Batterymarch St., 1544 pp. $9.50.

2. Little, Robert W., *Flameproofing Textile Fabrics.* New York, Reinhold Publishing Corp., 330 W. 4th St., 1949.

3. *National Electrical Code,* Volume V. Boston 10, National Fire Protection Association, 60 Batterymarch St., 1949, 408 pp. $3.00.
Also available from The National Board of Fire Underwriters, 85 John St., New York 38, N. Y. Single copies free. 10¢ each for large quantities.

4. *Put That Fire Out!* Boston 10, National Fire Protection Association, 60 Batterymarch St.
Single sheet pamphlet illustrating various types of extinguishers for different types of fires.

5. *Safe Use and Storage of Gasoline and Kerosene on the Farm,* Farmer's Bulletin No. 1678. United States Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office. Revised Edition, 1945, 14 pp. 5¢.

6. *Selected Demonstrations for Use in Fire Safety Education.* Boston, National Fire Protection Association, 60 Batterymarch St., Revised, 1938. 35¢.

7. Lynde, Carleton, John, *Experiments on Heat with Home Equipment,* Second Edition. Scranton, International Textbook Co., 1949.

8. *Fire Triangle,* Poster Packet. National Commission on Safety Education, National Education Association, Washington 6, D. C., 1951. 50¢.

FILMS

Chemistry of Combustion. 46 minutes, 16 mm. sound. Conditions necessary for starting fires and principles involved in extinguishing them. State College, A. V. A. Library, The Pennsylvania State College. Rental $2.50. (USOE.)

More Dangerous Than Dynamite. 10 minutes, 16 mm. sound. Electrical insulation, appliances, and cleaning fluids. Harrisburg, Commonwealth of Pennsylvania, Division of Farm and Home Safety, Department of Public Instruction. Free rental to Pennsylvania requests. (Simmel.)

The Chemistry of Fire. 10 minutes, 16 mm. sound. Fuel oxygen and ignition combined to make fires. New York 38, National Board of Fire Underwriters, 85 John St. (Castle.)

The Shocking Truth. 26 minutes, 16 mm. sound. Uses 110 volt electricity. Harrisburg, Commonwealth of Pennsylvania, Division of Farm and Home Safety, Department of Public Instruction. Free rental to Pennsylvania requests. Library of Liberty Mutual Insurance Company.

3. HOW CAN *Oral and Written* SPEECH CONTRIBUTE TO FIRE PREVENTION?

LEARNING ACTIVITIES FOR ENGLISH CLASSES

Written and spoken words have always been effective media through which important civic and social developments are promoted. When instruction is offered in the development of composition, what is better than to build around an important topic of the day? If a pupil seeks to prepare and deliver a speech of persuasion, the urgent topic of fire prevention and control will offer unlimited opportunities to develop a badly needed campaign. In the field of oral speech and drama, the great losses of life and property, coupled with the unbearable hardships of raging fires, challenge the highest aspirations in depicting emotion.

The entire field of fire prevention will bear constant repetition both in written and oral composition. There is always opportunity to emphasize carelessness, there is constantly a new list of misfortunes which provoke discussion, and such constant reminders eventually lead to the development of attitudes and habits which lead to reduction of losses.

POINTS FOR SPECIAL EMPHASIS

1. There are some 14,000 volunteer fire departments in the United States. There may be one in your area. They are in constant need of support, both economic and moral. Let us speak or write in their behalf.
2. Many speech departments choose the project of presenting radio programs. Let us suggest a one-act drama in firesafety. (See Section Five, page 150.)
3. A carefully planned assembly program is an opportunity to reach many persons at one time, thereby developing a mass attitude for good in regard to firesafety. A firesafety playlet or drama will produce the desired effect. (See Reference No. 4.)
4. In the planning of a Fire Prevention Week, there is a need for speakers, solicitors, newspaper articles, and informative leaflets. We could assist in the composition of the text. (See Reference No. 2.)
5. There is always an opportunity to promote conservation of natural resources. The field of forest conservation alone provides materials for a host of speeches, plays, radio presentations, themes, and newspaper articles. (See Section Five, page 150, for Dramatizations in Fire Prevention.)

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. Is there a need for further promotion of the matter of fire prevention and safety? (See Reference No. 1, below.)
2. What are all the possible ways in which information can be presented which would lead to a reduction of fire losses?
3. Are our homes really safeguarded against fires? (See Reference No. 3.)
4. What constitutes a good set of directives for a large group of people to follow if fire occurs in a large public building?
5. What constitutes the material needed for a good fast-moving drama featuring firesafety? (Refer to Reference No. 4, below.)
6. What are the problems which face your volunteer fire department in the raising of finances, recruiting personnel, gaining general public support? How may they be met? Perhaps an interview with members of the local department would be a worthy pupil activity.

SOME APPROPRIATE THINGS TO DO

1. Prepare and present a radio drama promoting fire prevention.
2. Prepare and present a school assembly promoting fire prevention.
3. Interview the local fire department personnel; then write an essay or prepare speeches on the solution of their problems.
4. Enter into the promotion of your local Fire Prevention Week activities with newspaper articles, radio "plugs," classroom and assembly speeches.
5. Compose a drama on firesafety, based upon some fire catastrophe which is fresh in the minds of your local citizens.
6. Take some phase of conservation, such as the prevention of forest fires, and develop a preventive philosophy through essays or speeches.

REFERENCES FOR ENGLISH UNIT

1. *A Curriculum Guide to Fire Safety,* Bulletin No. 8. Federal Security Agency, U. S. Office of Education, Washington, D. C., Superintendent of Documents, Government Printing Office, 1946, 31 pp. 10¢.
2. *Fire Prevention Week Handbook,* Tenth Edition. Boston 10, The National Fire Protection Association, 60 Batterymarch St., 1945, 12 pp. 15¢.
3. *Fire Safety Check List for Your Home.* New York 38, National Board of Fire Underwriters, 85 John St.
   A single sheet pamphlet.
4. *The Intruder.* New York 38, The National Board of Fire Underwriters, 85 John St.
   A firesafety play in one act for high school students, by Emma Gelders Sterne.

4. HOW CAN THE STUDY OF *Health and Safety* CONTRIBUTE TO FIRE PREVENTION?

LEARNING ACTIVITIES FOR HEALTH CLASSES

At first glance, one is inclined to feel that health study has relatively little connection with fire prevention and control, as the study of health is often limited to the spread of communicable diseases, the selection of diet, the development of health-promoting habits, and the avoidance of health-destroying practices.

However, a great number of lives are lost through asphyxiation, scars and impairments result from flame contact, permanent impairment of heart and nervous system results from electrical shock, and needless loss of life results from the panic accompanying the effort to escape from burning or smoke-filled buildings. The self-discipline which results from long practice in evacuating public buildings in an orderly fashion, the simple steps of self-preservation which lead to escaping from a smoke-filled room, the smothering of flames in wearing apparel, and many other life-saving acts are the direct result of careful training coupled with practice and drill, to the point that such actions become involuntary with the individual.

POINTS FOR SPECIAL EMPHASIS

1. Burns are of three classes, and each class is treated in a specific manner.
2. In most cases more people are killed or maimed in the rush to escape from a burning building than are injured in the accompanying flames.
3. Our homes are the scene of more damaging accidents by burns and fires than are our public buildings.
4. Many burns or smoke inhalations, which at first seem of minor importance, often have serious or even fatal consequences.
5. Every building, even the modern home, should be carefully studied for means of escape in case of fire, and occupants should be made familiar with such a plan.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

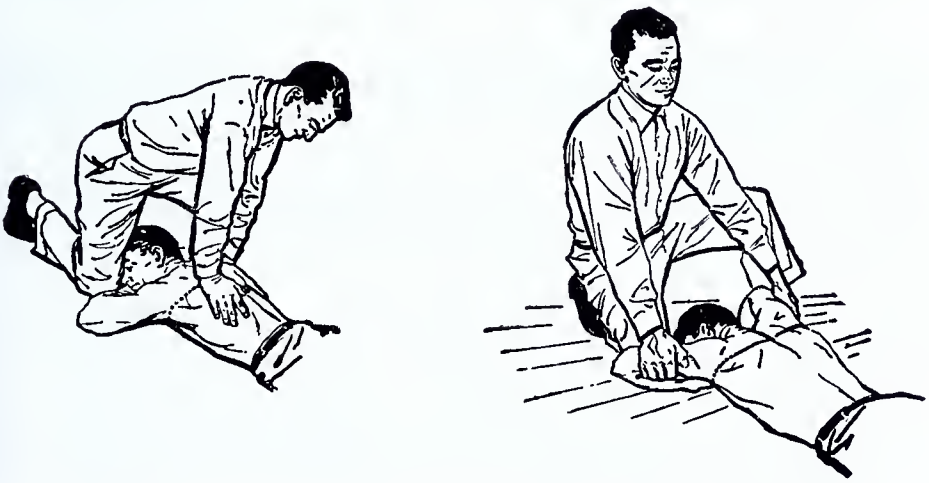
1. What are the three classes of burns? How is each treated? What first aid may be rendered until medical assistance is available?
2. How does one reduce the danger of moving through a smoke-filled room to an escape exit?

3. What is the most practical way of extinguishing a fire in a person's clothing?
4. Is there a need for a "Fire Drill Plan" for the home in which you live?
5. What "escape devices" may be used to safely evacuate upstairs bedrooms when the fire is raging on the first floor?
6. What are considered the "Danger Spots" in modern housing? (See Reference No. 9, page 86.)
7. What precautions or safety measures may be developed for each of the spots listed above?
8. What pieces of fire-fighting equipment might well be stationed in or about your home? Are you familiar with the operation of the various types of extinguishers?
9. What medications or other first-aid facilities should be found in the home first-aid kit for the handling of burns?
10. What are the channels by which you may summon aid if fire breaks out in your home?
11. What are the firesafety precautions to be observed in your camping experience? (See Reference No. 3, page 86.)

SOME APPROPRIATE THINGS TO DO

1. Demonstrate the steps of first aid applicable to each of the three types of burns. Your health texts will serve as a source of material.
2. Demonstrate the administering of artificial respiration for victims of asphyxiation; demonstrate smothering of fires in clothing. (See References Nos. 4 and 5.)
3. Make a list of do's and don'ts on how to get out of a burning building. (See Reference No. 10.)

4. Make a rough cut-away sketch of a home, listing and locating the fire hazards common therein. For example, ash trays close to billowing curtains, draperies close to high wattage electric bulbs, lack of screens before fireplaces, overloaded light circuits, etc. (For an abundance of ideas, consult Reference No. 6.)
5. If a camping activity, either a day camp or an over-night camp, is planned as a group experience, check the firesafety precautions beforehand relative to the particular kind of camp planned. (See Reference No. 3.)
6. Have each pupil complete a floor-plan sketch of his home, showing stairways, window location, porches, etc. Then have each construct a fire drill plan with special emphasis on the second floor, or on a one-stairway home.
7. Have each pupil complete the Home Inspection Blank for School Children. (See Reference No. 1.)
8. Refer to the Unit for Chemistry and Physics and determine the types and adaptations of fire extinguishers suitable to home use. A repeated demonstration in the use of any piece of fire apparatus is always in order. (See Reference No. 7.)
9. Ask the local fire company or rescue squad to demonstrate the use of the inhalator.



Illustrating two steps in administering artificial respiration.

BIBLIOGRAPHY FOR HEALTH ACTIVITIES

1. *A Home Inspection Blank for School Children.* New York 38, National Board of Fire Underwriters, 85 John St.

   Reproduced in Section Two by permission of the Board.

2. *Building Exits Code.* Boston 10, National Fire Protection Association, 60 Batterymarch St., 1946, 112 pp. $1.00.

   Considered the standard guide for the protection of life from fire.

3. *Camp Self-Inspection Blank,* a single sheet check list for firesafety in camps. New York 38, The National Board of Fire Underwriters. Free.

4. *First-Aid Textbooks for Juniors,* Chapter VI, "Artificial Respiration,"[1] Chapter XIV, "Injuries Due to Heat and Cold," Chapter XVI, "First-Aid Kits." Philadelphia, The Blakiston Co., 1949, 132 pp. 35¢.

5. *First-Aid Textbook,* Corrected Edition, Chapter VII, "Artificial Respiration,"[1] Chapter IX, "Injuries Due to Heat and Cold," Chapter XIV, "Firt-Aid Kits." Philadelphia, The Blakiston Co., 1940, 256 pp. 50¢.

6. *Home Inspection Blank—Make Your Home Safe from Fire.* Harrisburg, The Sparks Club, Mutual Fire Insurance Companies.

   A home inspection blank and "cut-a-way" house showing danger areas.

7. *Put that Fire Out!* Boston 10, National Fire Protection Association, 60 Batterymarch St.

   Single sheet pamphlet illustrating various types of extinguishers. See pages 78, 79.

8. *School Fire Drills,* Pamphlet No. 103. Washington, D. C., Superintendent of Documents, Government Printing Office, 1948, 20 pp. 10¢.

9. *Sixty Ways to Prevent Fire in Your Home.* New York 38, National Board of Fire Underwriters, 85 John St.

   A single sheet pamphlet.

10. *Trapped by Fire.* Boston 10, National Fire Protection Association, 60 Batterymarch St.

    A single sheet pamphlet.

Motion Picture Film: *A Word to the Wise,* 15 minutes, 16 mm., sound. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, Division of Farm and Home Safety.

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[1] Supplemental material on new methods of administering artificial respiration are being prepared currently by the American Red Cross.

5. HOW CAN FIRE BE PREVENTED *in Homes?*

LEARNING ACTIVITIES FOR HOMEMAKING CLASSES

When we think of the American Home, we think of a place of comfort and safety. Whether one lives in the country, the city, a large house, or an apartment of few rooms, much of the materials used in the construction of the home and nearly all the furnishings and the clothing worn are readily ignited and can be destroyed by fire.

It is a common attitude to attribute fires to carelessness. While carelessness is a factor in permitting fires to start from any of many existing hazards, to say that fires are "due to carelessness" is too casual an answer to the problem. It leaves an impression that nothing can be done about it when, as a matter of fact, nearly all fires in the home can be prevented.

POINTS FOR SPECIAL EMPHASIS

1. Two-thirds of all fires are in buildings.
2. One-third of all fire losses are in dwellings.
3. In the United States nearly 5,000 persons, half of whom are children, are killed each year by fire in homes.
4. There are many fire accidents which result in disfigurement, loss of senses, loss of limbs, and other afflictions which handicap persons for life.
5. Nearly all fires in the home can be prevented.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. To what seven major causes can fires in the home be traced? (See Reference No. 15, page 94.)
2. Why do fires in the home spread with great rapidity? How may this spread of flames be retarded by preventive planning?
3. What preventive practices may be taken to avert fires arising from over-loaded or ill-used electrical appliances such as the electric iron? the heating pad? electrically activated children's toys?
4. What are the hazards encountered in starting a fire in a range, or furnace? (See Reference No. 22, page 95.)
5. What safety rules should be followed relative to open flame fires, with relation to matches, oil lamps, candles, hearth fires, and bonfires?
6. What are the safety measures to be applied to the handling of cooking utensils, ranges, and water heaters? What precautions should be taken in reference to these in avoiding burns to children? (See Reference Nos. 25 and 28, page 95.)

7. Why are accidents so common in the use of home cleaning fluids? (See motion picture film "Chemistry of Fire" listed in Section Five.)
8. How may the family members be made aware of the hazards which have become commonplace in their homes? (See Reference Nos. 2, 13, 15, 18, 22, and 24, pages 94-95.)
9. What would be the advantage of a family formulating a "fire drill plan" for their own home?
10. What types of fire extinguishers are well adapted to combating home fires? (See Reference Nos. 20 and 30.)

SOME APPROPRIATE THINGS TO DO

1. Compile a list of preventive measures for each of the seven major causes of home fires. (See Reference No. 15.)
2. Demonstrate the proper methods of handling electrical appliances with a view toward preventing burns and fires. Emphasize servicing motors, renewing worn cords, and the elimination of trailing extension cords and overloaded circuits.
3. Demonstrate the proper methods of handling open flames, cleaning and lighting oil lamps, and using candles that fit snugly into proper holders. Show the dangers of placing Christmas greenery and other flammable materials near or around candles.
4. Compile a set of safety practices for the open fireplace or hearth fire.

5. Make a neatly printed set of rules in regards to such activities as the handling of cooking utensils, hot water, hot water outlets, cooking grease, hot baking dishes, steaming food, and pressure cookers. These sets of rules can be placed close to kitchen ranges. One or two of these rules can be embroidered as reminders on each of a number of pot holders.
6. Demonstrate the proper handling of cleaning fluids in a well-ventilated room. The following outline may be helpful in organizing the demonstration.

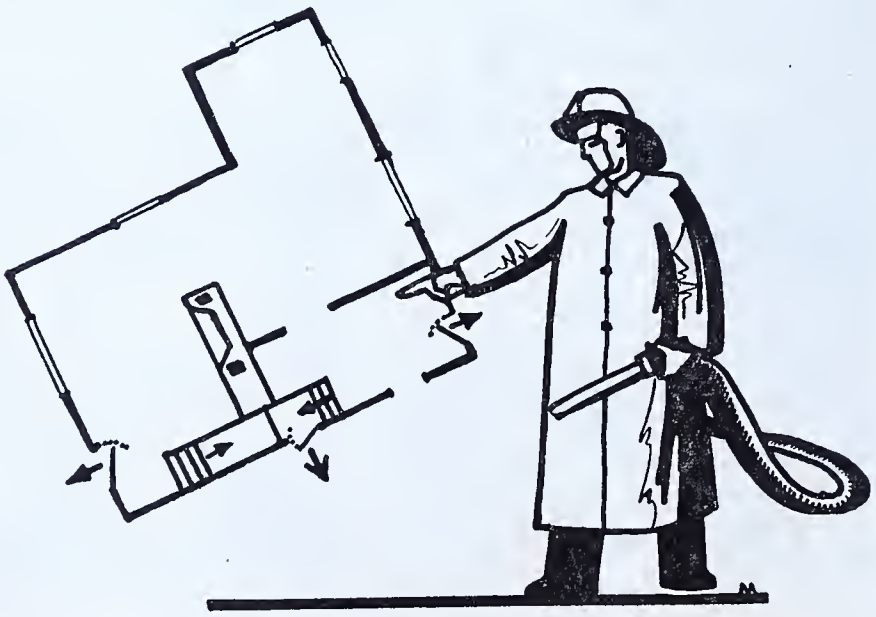
USING CLEANING FLUIDS

NOTE: The job of dry cleaning can be done better and safer by a dry cleaning establishment. For those who insist on doing the task at home these instructions should be followed.

Safety Instructions	*Cautions*
a. Use nonflammable and nonexplosive fluids such as carbon tetrachloride.	a. Cleaning fluid may be marked "non-explosive" and still be flammable.
b. Never use benzine, gasoline, kerosene, naptha or any other flammable cleaning fluid under any circumstances. All of these are explosive.	b. Fumes may travel throughout the house and become ignited by an open flame such as the pilot light of the kitchen range, the match of a smoker, the furnace fire or from other similar sources. An igniting spark can be created by the mere friction of rubbing a fabric.
c. Only the smallest quantity of fluid necessary to do the work should be used.	c. Most cleaning solvents, especially carbon tetrachloride, produce vapors that are dangerous (toxic) to inhale.
d. Dry cleaning should be done outdoors on a warm dry day.	d. Rapid dissipation of the toxic vapors is necessary. The striking of matches or smoking should not be tolerated near the dry cleaning activity.
e. Children and pets should be kept away from the work area.	e. Precautions against spilling solvents is a necessity.
f. Devise methods of keeping the hands out of the solvent. A suction washer is desirable.	f. Some solvents may burn the skin.
g. Dry the freshly cleaned garments by hanging them outdoors.	g. Drying the garments in a warm room or using an iron to hasten the drying are dangerous practices because of the rapid accumulation of fumes.
h. The same rules apply when removing small spots from garments.	h. A small amount of cleaning fluid may be highly volatile and can cause a large fire.

7. Place a copy of the *Firesafety Check List,* designed to safeguard the home, in the hands of each pupil and have pupils, in cooperation with their parents, score their own home. Use the lists as a basis for class discussion. (See Reference No. 7, page 94.) This check list has been reproduced in these activities.)
8. Have pupils make sketches of the floor plans of their homes, on which they indicate escape routes in case of fire. The teacher could "spot a fire" on the floor plans and have the pupil indicate escape routes from bedrooms, cellars, and other rooms.

9. Examine and demonstrate types of fire extinguishers applicable to home use. (See Reference Nos. 20 and 30, pages 94, 95.)
10. Demonstrate or have pupils demonstrate the flameproofing of a fabric, preferably an ironing board cover. (See Reference No. 23, page 95.) Perhaps a cooperative venture might be arranged among the various school departments to the mutual benefit of each.
11. Have the class check the time required to burn a discarded Christmas tree. This can be done outdoors at the proper season of the year. Be prepared to record the time in seconds. Most authorities agree that it is almost impossible to completely fireproof a Christmas tree. Use this opportunity to caution against burning holiday greens in an open fireplace.
12. Have pupils do home projects, write compositions or compile booklets on the planning and construction of fire-safe homes. (See Reference No. 28. Also, see Reference No. 1, Bulletin 325, Unit I, "Safe at Home," pp. 95-99. Also, write to the Division of Home Economics, Department of Public Instruction, Harrisburg, for mimeographed unit on "The Modern Home." This 23-page booklet gives excellent help on home planning and contains much reference material.)
13. Request the local gas company to send home-service personnel to demonstrate the proper lighting and use of gas appliances.
14. Invite home-service personnel to demonstrate installation, care, and use of electrical appliances, including lamps.
15. Paint cans red for the storage of flammable materials. Why should we never store flammable materials in glass bottles?



16. HOME SAFETY JUMBLE WORD GAME

Unscramble the underlined word and write it in the blank space following to determine the correct answer to the question.

1. What might happen if you handle electrical appliances or metal light fixtures with wet hands?	hocks	( )
2. What electrical appliance has caused many serious accidents?	niro	( )
3. What should never be used to start fires?	reeknose	( )
4. What will happen if you let gas accumulate in the oven before lighting it?	slopenixo	( )
5. What might happen to fumes of flammable cleaning fluids when they come in contact with a flame?	nitige	( )
6. What are the two prerequisites in buying dry cleaning fluid?	felmbonamlan nevisxpenolo	( ) ( )
7. What is often permitted to accumulate in attics and basements?	shubbir	( )

Answers: (shock) (iron) (kerosene) (explosion) (ignite) (nonflammable) (nonexplosive) (rubbish)

(The game can be extended)

USE THIS FIRE SAFETY CHECK LIST TO SAFEGUARD YOUR HOME TODAY!

(By permission of The National Board of Fire Underwriters)

Home firesafety is a family responsibility. Every member of the family has a vital interest and should take part in a check-up to find fire hazards.

The questions on this firesafety check list are so worded that all may be answered "Yes" or "No." Each question answered "No" points to a serious firesafety hazard.

Since the check list is so designed as to cover the average dwelling, it is quite possible that some of the hazards listed do not exist in your home. For example—if you live in a home that is heated by radiant heat, your dwelling may have no cellar. Therefore, all hazards pointed out as lurking in the basement can not exist in your home. Or you may live in an apartment and have no yard or garage hazards and it is quite possible that you do not own a portable oil heater.

Therefore, each question which points out a nonexistent hazard may be eliminated by the simple expedient of drawing a line through the entire question.

When the blank is completed, questions answered "No" (√) will stand out and give you an accurate picture of the existing fire hazards. Then you can take immediate steps to eliminate these known fire hazards from your home.

	√ *Check*	
YARD AND GARAGE HAZARDS	*Yes*	*No*
Have you removed all flammable rubbish, leaves and debris from your yard?	☐	☐
Have weeds, dried leaves and rubbish been removed from vacant property adjacent to yours?	☐	☐
Is an adult always present during the entire time trash, leaves, etc., are being burned out of doors?	☐	☐
Have you removed all waste, debris, and litter from your garage?	☐	☐
Does your garage have a concrete, brick, or earthen floor?	☐	☐
If you store paint, varnish, etc., in garage, are the containers always kept tightly closed?	☐	☐
If your garage is in the basement, or is a part of the house, is it separated from the living quarters by fire-resistant partitions, ceiling, and door?	☐	☐
HOUSEKEEPING HAZARDS		
Do you keep your cellar, storerooms, and attic free from rubbish, old rags, old papers, broken furniture, etc.?	☐	☐
If you use an oil mop, do you keep it in a metal container or other safe, well-ventilated place where it will not catch fire?	☐	☐
Do you destroy or safely dispose of oily polishing rags or waste after using?	☐	☐
Do you collect ashes in *covered hole-free metal containers,* and dispose of them at frequent, regular intervals?	☐	☐
Has your family been forbidden to use gasoline, benzine, or other similar flammable cleaning fluids for clothing or on floors in your home?	☐	☐
HEATING AND COOKING HAZARDS		
Is your inside basement door at the head of the stairs made of heavy wood or metal and tightly fitted?	☐	☐
Are floors under stoves and heaters protected by metal, brickwork, concrete, or ventilated air space?	☐	☐
If your house is oil heated, is the burner oiled, cleaned, adjusted, and inspected by a qualified service man before the heating season?	☐	☐

	Yes	*No*
Are all stovepipes and chimneys cleaned, repaired and your furnace inspected each fall?	☐	☐
Have you eliminated all stovepipes which pass through attic, closets, storerooms, or frame partitions?	☐	☐
Are walls, ceilings and partitions protected by insulation or adequate separation from overheating of stoves, furnaces and pipes?	☐	☐
Are members of your family forbidden to start fires with kerosene or other flammable liquids?	☐	☐
Are all fireplaces equipped with metal fire screens?	☐	☐
If you have gas connections made of rubber tubing for portable heaters or appliances, are shut-off valves installed in the solid connection or in the metal gas pipe?	☐	☐
PORTABLE OIL HEATER HAZARDS		
Are your portable oil heaters of a type which has been examined and listed by the Underwriters' Laboratories, Inc.?	☐	☐
Is your portable oil heater always set so that it is level, in order to insure proper operation?	☐	☐
Do you always refill the fuel tank or compartment of your portable oil heater out doors and in the daylight?	☐	☐
If you use a wick-type portable oil heater, do you trim the wick and clean it regularly?	☐	☐
Do you regulate the flame of your portable oil heater to keep it from smoking?	☐	☐
Do you always turn your portable oil heater out upon retiring at night?	☐	☐
ELECTRICAL HAZARDS		
Do you allow only qualified electricians to install or extend your wiring?	☐	☐
Do all of your electrical appliances—including irons, waffle irons, mixers, heaters, lamps, fans, radios, television sets, and other devices—bear the label of the Underwriters' Laboratories, Inc.?	☐	☐
Do all rooms have an adequate number of outlets to take care of electrical appliances?	☐	☐
Have you done away with all multiple attachment plugs?	☐	☐
Are your electric irons and all electrical appliances used for cooking, equipped with metal stands and heat controls?	☐	☐
Are special circuits provided for heavy-duty appliances such as washing machines, refrigerators, ironers, etc.?	☐	☐
Do you use only 15 amp. fuses in the fuse box for your household lighting circuits?	☐	☐
Are all flexible electrical extension cords in your house in the open—none placed under rugs or over hooks?	☐	☐
MATCHES AND CARELESS SMOKING HAZARDS		
Do you keep matches in metal containers away from heat and away from children?	☐	☐
Do you extinguish all matches, cigarette and cigar butts carefully before disposing of them?	☐	☐
Do you see to it that there are plenty of ash trays in all rooms throughout the house?	☐	☐
Are all members of your family instructed not to smoke in bed?	☐	☐
WHAT TO DO IN CASE OF FIRE		
Do you know the location of the alarm box nearest your home?	☐	☐
Do you know how to turn in a fire alarm?	☐	☐
Do you know the telephone number of the fire department?	☐	☐
Did your entire family take part in completing this check list?	☐	☐

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NAME OF HOUSEHOLDER

.....

STREET ADDRESS

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CITY ZONE STATE

BIBLIOGRAPHY FOR HOMEMAKING ACTIVITIES

1. *Bulletin 325, A Suggested Program in Homemaking for Secondary Schools.* Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, 1948, 167 pp.
2. *Check List for Home Safety.* National Safety Council, 425 North Michigan Ave., Chicago 11, 2 pp. 1¢.
3. *Design Tomorrow's Clothes Today.* National Safety Council, 425 North Michigan Ave., Chicago 11, 4 pp. 5¢ each; in quantity over 9, 1¢ each.
4. *Electric Service with Safety.* Public Relations Committee, International Association of Electrical Inspectors, 85 John St., New York 38, 23 pp. Free.
   Discusses safe care and safe practices in using electric equipment in the home.
5. *Farm Home Accidents.* National Safety Council, 425 North Michigan Ave., Chicago 11. A single sheet pamphlet. Free.
6. *Fire Prevention Guide.* Hardware Mutual Casualty Co., Stevens Point, Wis., 19 pp. Free.
7. *Fire Safety Check List for Your Home.* National Board of Fire Underwriters, 85 John St., New York 38. A single sheet pamphlet.
8. *Hazards in Our Home Sweet Home.* Engineering Division, Maryland Casualty Co., Baltimore, Md., 15 pp. Free.
9. *Hidden Hazards.* Insurance Co. of North America, 1600 Arch St., Philadelphia, 1946, 64 pp. Free.
   A guide to making homes safe through the selection of building material and methods of construction.
10. *Home Economics Safety Highlights.* National Safety Council, 425 North Michigan Ave., Chicago 11, 25¢ per year. Subscription (5 issues).
    A bimonthly safety newsletter directed to home economics teachers.
11. *How To Build a Safer Home,* Booklet No. 4. *Good Housekeeping,* 57th St. at 8th Ave., New York 19, 25 pp. 25¢.
12. *How to Keep from Going to Blazes.* The National Board of Fire Underwriters, 85 John St., New York 38, 9 pp. Free.
    Describes some home fire hazards.
13. *How to Prevent Fire in the Home.* Philadelphia, Insurance Co. of North America, 1946. Free.
14. *Keep Your Christmas Merry.* The National Board of Fire Underwriters, 85 John St., New York 38. Single sheet. Free.
15. *Keep Your Home From Burning,* No. G-1. National Fire Protection Association, 60 Batterymarch St., Boston, 1944.
    A single sheet pamphlet on causes and spreading of fires in homes.
16. *Make This a Safe Christmas.* National Fire Protection Association, 60 Batterymarch St., Boston 10. Free.
    Information for making the Christmas tree safe. Safety advice on Christmas lighting, flammable decoration, rubbish and hazards in public places.
17. *Make Your Chimneys Safe.* National Fire Protection Association, 60 Battery march St., Boston 10. Free.
    Ten rules for chimney construction.
18. *Make Your Home Safe from Fire.* Sparks Club of Mutual Fire and Casualty Insurance Companies, Pennsylvania Mutual Inspection Bureau, 147 N. 13th Street, Harrisburg, Pa.
19. *Prevent Electric Iron Fires.* National Fire Protection Association, 60 Batterymarch St., Boston 10, Free.
    Safety rules for the electric iron.
20. *Put That Fire Out!* National Fire Protection Association, 60 Batterymarch St., Boston 10.
    Single sheet pamphlet illustrating various types of extinguishers for different types of fires.

21. Safety Guide. National Safety Council, 425 North Michigan Ave., Chicago 11, ½¢. Each guide contains safety information for:
    Safety Guide No. 2—Home Dry Cleaning
    " " " 3—Cooking (Handling Pots and Pans)
    " " " 6—Cook Stoves (gas)
    " " " 11—Matches
    " " " 12—Electric Cords
    " " " 30—Electric Lamps
    " " " 31—Basement Hazards
22. *Safeguarding the Home Against Fire.* National Board of Fire Underwriters, 85 John St., New York 38, 1945. 96 pp.
23. Sanholzer, Marjorie W., *Flameproofing of Textiles.* U. S. Department of Commerce, National Bureau of Standards, U. S. Government Printing Office, Washington, D. C., 1946, 20 pp.
24. *60 Ways to Prevent Fire in Your Home—In Your Business or Wherever You Are.* The National Board of Fire Underwriters, 85 John St., New York 38, single sheet folder. Free.
25. *Safety Instruction Cards,* 3" x 5" . National Safety Council, 425 North Michigan Ave., Chicago 11. 1 to 9, 10¢ each; 10 to 99, 4¢ each; 100 to 999, 3¢ each; 1,000 or more, ¼¢ each.
    Give safety suggestions on the following Safety Instruction Cards:
    No. 23—To Put Out a Clothing Fire
    No. 26—Fastening Plugs to Extension Cords
    No. 29—Housekeeping Inspection List
    No. 129—Hazards at Home
    No. 276—Dry Cleaning at Home
    No. 349—Home Fire Dangers
    No. 370—Portable Electric Lamps
    No. 391—Home Cooking Hazards
    No. 399—Your Home on Fire
    No. 651—Fire Extinguishers (Soda Acid Type)
    No. 652—Fire Extinguishers (Carbon Dioxide Type)
    No. 653—Fire Extinguishers (Foam Type)
    No. 654—Fire Extinguishers (Vaporizing Liquid Type)
26. *Safety in Family Living.* Tentative Edition. Department of Home Economics and National Commission on Safety Education of the National Education Association, 1201 Sixteenth Street, NW, Washington 6, D. C., 1950, 43 pp.
27. *The Modern Way to Better Home Canning.* National Pressure Cooker Co., Eau Claire, Wis., 8 pp. Free.
    Illustrates and explains 25 steps for safe and correct canning by the pressure cooker.
28. *The Fire Safe Home.* National Board of Fire Underwriters, 85 John St., New York 38, 19 pp. Free.
29. *To a Man's Heart.* National Safety Council, 425 North Michigan Ave., Chicago 11, 4 pp. illustrated. 5¢ each, quantity over 9, 1¢ each.
    Written for the high school home economics student, this unit supplement is planned to accompany the unit on meal preparation. Safe practices involved in meal preparation are stressed.
30. *When Fire Strikes You.* National Fire Protection Association, 60 Batterymarch St., Boston 10. Free in limited quantities. A single sheet pamphlet.
31. *Treating Spruce and Balsam Fir Christmas Trees to Reduce Fire Hazard.* U. S. Department of Agriculture, Forest Service, Forest Products Laboratory, Madison, Wis., 1947.
32. *Which Fire Extinguishers Are Best for Different Kinds of Fire?* National Fire Protection Association, 60 Batterymarch St., Boston 10. Free.
33. Wieland, Lauretta Larson, *At Work in the Kitchen,* p. 39, "We Practice Safety." Scranton International Textbook Co., 1948, 129 pp.

6. WHAT ARE THE *Opportunities* FOR *Individual and Community* ACTION FOR PROTECTION FROM FIRE?

LEARNING ACTIVITIES FOR SOCIAL STUDIES CLASSES

The field of social studies is a wide one. All subject matter presented in the schools is a part of the social studies curriculum, since all instruction is aimed at the objectives of preparing for the earning of a livelihood, the wise use of earnings, the beneficial correlated activities of many persons acting as a group for the improvement of all persons in that group, or for the development of social traits and habits which make for the improvement of society as a whole.

Certainly, then, a fire prevention program coupled with the development of organized groups and activities aimed at the reduction of fire losses, merits an intensive study on the part of social studies classes.

Planning for Fire Prevention Week provides an excellent opportunity to study the organization of "community campaign" work complete with committees and stated activities. It provides opportunity to acquaint pupils with fire department organization, the need for members and financial support for our volunteer companies, and to develop wholesome attitudes on the part of pupils toward organized community activities leading to the organization of, and active participation in, fire departments, auxiliary units, and conservation of natural resources through fire prevention and protection.

If the staggering losses due to fires be reduced even by a small percentage, the investment of the community will be more than repaid.

POINTS FOR SPECIAL EMPHASIS

1. According to the National Fire Protection Association there are some 14,000 volunteer or paid-on-call fire departments, and over 1,000 paid or partly-paid fire departments in the United States. Obviously, the activities of citizens themselves play a major role in the protection of lives and property in our country.
2. All fire departments, whether paid or volunteer, should be responsible, at least to a reasonable degree, to the citizens and taxpayers of their respective communities. By the same token, such companies deserve to look to their constituents for the support necessary to maintain and operate adequate equipment and facilities.
3. Each year approximately 11,000 persons, more than half of them women and children, lose their lives in fires, and the nation suffers a property damage loss of over one and three-quarters of a million dollars per day. Think what that money would mean if applied to the equipping and training of fire-fighting personnel.

4. It should be emphasized that agitation for a program in any community which results in permanent improvement in local conditions is perhaps the most important part of any fire prevention program.
5. To obtain maximum effectiveness, a fire prevention program must aim to:
   a. Reveal the cost of annual fire waste both in lives and dollars.
   b. Educate the public in the fundamental causes of fire.
   c. Show each individual what he can do, acting separately or through group activity, to reduce his community's fire losses.
   d. Provide incentives and opportunities for individual and community action.
6. Since the forests of Pennsylvania are so necessary to the economy of the State and every community is affected by the annual forest-fire waste, a study of this problem in social studies classes should not be overlooked.

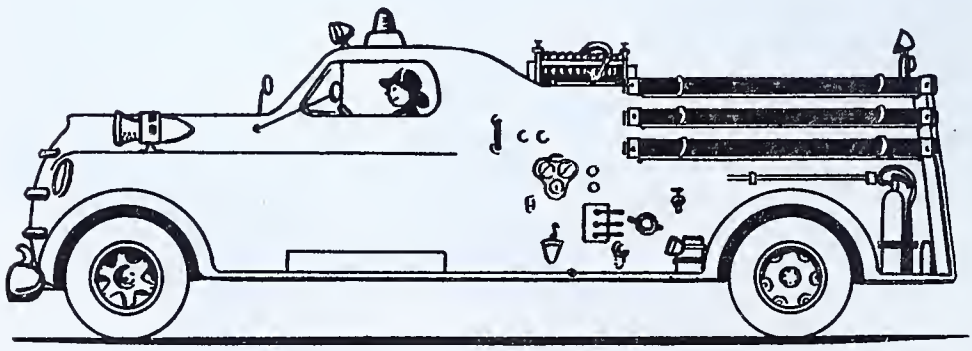
SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

1. If insured property burns and the owner collects the insurance, who really pays for the loss?
2. What are the fundamental differences between paid fire companies and volunteer fire companies? In what class of cities in Pennsylvania are paid fire companies required and how do they compare in numbers with volunteer fire companies? (See Reference No. 11, page 99.)
3. What legislation has been passed governing the organization and the activities of volunteer fire departments? (See Reference No. 11.)
4. What advantages does a property owner derive from a rigid building code?
5. What constitutes a workable plan of organization for a volunteer fire department? (See Reference No. 13.)
6. What might reasonably constitute the amount of a budget required by a volunteer fire department serving a community of less than 5,000 persons? (Confer with local fire company officers.)
7. What advantage is adequate fire protection to the property owner?
8. Is there an observance of Fire Prevention Week in your community? If so, what constitutes the campaign or program?
9. What are the various activities that a community may plan for a fire prevention campaign? (See Reference No. 12.)
10. Are you familiar with the procedure to be followed in a fire drill for the building in which you are now studying? Do you know why one signal may call for evacuation through one door, while another signal calls for a different exit? (See Reference No. 10.)
11. How can panic be prevented and controlled in the event of fire in public buildings where there are large gatherings of people? (See Reference No. 3.)

12. What is the importance of forests to our State and national prosperity? (See Reference No. 1.)
13. What are the kinds of forest fires, how do they burn, and how are they controlled? (See Reference No. 14.)
14. How can a community establish a Community Forest? (See Reference Nos. 2 and 8.)

SOME APPROPRIATE THINGS TO DO

1. Chart the organization of your local fire company, showing departmental and officer organization, auxiliaries, patronage area, financial maintenance, major equipment and facilities.
2. Survey the economic support given your fire department. If it is believed inadequate, suggest activities or other community sources of income which might alleviate this condition. Confer with local fire company officers for information.
3. Plan a community organization, outline a campaign, and plan a program in which your community may properly observe Fire Prevention Week. Fire Prevention Week is observed annually the week in October which includes October 9. (See Reference No. 6.)
4. Examine the organization of the fire drill plan for your school. Can improvements be offered? This is not aimed at criticizing the existing plan, but rather at acquainting the pupils with the plan, and providing for new additions that have been made to buildings. (See Reference No. 5.)
5. Prepare a fire drill plan for your own home, with emphasis on escape from second floor bedrooms, particularly in one-stairway houses.
6. Make a list of the most common causes of fires. Have pupils prepare a list of preventives and suggest prompt controls for each. (See Reference No. 9.)



7. In connection with vocational guidance, have members of the class volunteer to interview a fireman to find out about his training and work. The reports can be made to the class or developed in project notebook form.
8. Draw a map of Pennsylvania showing the principal forest areas.
9. Find out what percentage of the State and what percentage of your county is of forest area. (See Reference No. 7.)
10. Invite the District Forester to talk to the class or to a school assembly on the subject of forest protection. Better still, arrange to visit a State forest accompanied by the District Forester.

REFERENCES FOR SOCIAL STUDIES ACTIVITIES

1. Bruere, Martha Bensley. *Your Forests.* Philadelphia: J. B. Lippincott Co., 1945. 159 pp.
2. *Community Forests in Pennsylvania.* Harrisburg: Commonwealth of Pennsylvania, Department of Forests and Waters, 1948. 31 pp.
3. Cutter, Walter. *Panic and Its Control.* New York 38. National Conservation Bureau, Association of Casualty and Surety Executives, 60 John St., 1943. 15 pp.
4. *Fire Prevention Education, Part I and Part II.* New York, New York University, 1945. 355 pp.
5. *Fire Prevention and Safety Handbook for Texas Public Schools.* Austin, Texas: Board of Insurance Commissioners, Fire Insurance Division, 1949. 63 pp.
6. *Fire Prevention Week Handbook.* Tenth Edition. Boston 10: The National Fire Protection Association, 60 Batterymarch St., 1945. 15¢.
7. *Forest Areas in Pennsylvania.* Harrisburg: Commonwealth of Pennsylvania, Department of Forests and Waters, 1948. 69 pp.
8. *Forest Trees to Plant in Pennsylvania.* Harrisburg: Commonwealth of Pennsylvania, Department of Forests and Waters, 1948. 34 pp.
9. *Safeguard the Nation Against Fire.* New York 7: The National Board of Fire Underwriters, 85 John St. 132 pp.
10. *School Fire Drills.* Pamphlet No. 103. Washington, D. C.: Superintendent of Documents, Government Printing Office, 1948. 20 pp. 10¢.
11. Smedley, Elizabeth. *Local Fire Administration in Pennsylvania.* Harrisburg: Commonwealth of Pennsylvania, Department of Internal Affairs, 138 pp.
12. *Tested Activities for Fire Prevention Committees.* Chicago 11: Federation of Mutual Fire Insurance Companies, 919 North Michigan Ave. Second Edition. 32 pp.
13. *Volunteer Fire Departments for Rural and Small Communities.* Boston 10: The National Fire Protection Association, 60 Batterymarch St., 1947.
    Includes sections of National Fire Codes.
14. Wirt, George H. *Lessons in Forest Protection.* Bulletin 35. Harrisburg: Commonwealth of Pennsylvania, Department of Forests and Waters, 1946, 43 pp. Free.

7. HOW CAN *Farm and Forest Fire* LOSSES BE PREVENTED?

LEARNING ACTIVITIES FOR VOCATIONAL AGRICULTURE AND OTHER CLASSES

The subject of rural fire prevention must of necessity constitute a unit of study in any curriculum in vocational agriculture. The rapid advances made in technical agriculture have resulted in the construction of large, well-appointed buildings, the development of high-grade livestock whose worth constitutes an astounding figure, the purchase of highly specialized machines whose values have raised farm inventories to levels far in excess of a generation ago, and finally in periods in which profit margins are shrinking, the replacement of the above-mentioned items presents a most difficult problem.

Farm families are aware of their increased holdings; many are aware, at least in part, of inadequate prevention and control practices. An institution such as the rural school must take the lead in initiating a sane approach to the solution of these problems.

POINTS FOR SPECIAL EMPHASIS

1. Ten lives are lost in farm fires EVERY DAY.
2. More than 40,000 farm buildings are destroyed ANNUALLY by fire.
3. Over 150,000 forest fires are reported EVERY YEAR.
4. A forest area equivalent to the area of New England was destroyed by fire in the past five years.
5. About one-third of the fires extinguished by fire departments can be put out by hand extinguishers.
6. It is the duty of the school to make pupils firesafety-conscious.
7. The agricultural department of the high school can render much good to the community through pupil participation in local fire-safety programs.
8. The strength of the community, the State, and the nation is dependent upon the conservation of resources within each community. Fire is a waster of resources.
9. The basic cause of fire losses is public ignorance or indifference. Firesafety experts estimate that about eighty per cent of fires could be prevented or controlled in their early stages through enlightenment of the public.
10. The function of the school is to educate for an action program in firesafety.

SUGGESTED PROBLEMS FOR DISCUSSION AND STUDY

This unit is comprised of nine separate areas for investigation and study. A discussion of the following problems will determine the extent to which the areas will need to be investigated:

I. How should flues be constructed, inspected, and maintained?

II. How should gasoline, kerosene, and other flammable liquids be stored?

III. How should electrical installations be made and maintained?

IV. How can spontaneous heating and spontaneous ignition be prevented in the storing of farm crops and supplies?

V. What needs to be known about the prevention and control of forest fires?

VI. What is the work of the volunteer rural fire company? How is it organized, financed, and operated?

VII. How can a rural fire insurance program be planned?

VIII. How can farm reservoirs, ponds, and cisterns be constructed?

IX. How can a survey of the rural farmstead be made with a view to a planned scheme of fire prevention?

I. THE CONSTRUCTION, INSPECTION, AND MAINTENANCE OF FLUES

Points for Special Emphasis (See Reference No. 4, page 116)

1. The design and construction of flues best suited to the needs of the building must be determined.
2. Solid masonry is the most satisfactory material to use for chimneys and fireplaces.
3. A common error in design is the failure to distinguish between the size of the flue required for the passage of smoke from a given volume of fuel as against that which will produce the required draft.
4. A chimney should extend at least two feet above the ridge of peaked roofs and three feet above flat roofs.
5. The foundation should be at least six inches wider all around than the chimney, and should be at least eight inches thick for one story, and twelve inches for two stories.
6. Smoke pipes should enter the chimney horizontally.
7. Chimney openings should be lined with fire clay or metal thimbles.

SOME APPROPRIATE THINGS TO DO

1. Have pupils design a chimney for a given structure in keeping with the directives listed above.
2. Design a flue foundation for a one-story or a two-story structure.
3. Sketch a flue arrangement to serve a basement furnace in addition to a first-floor fireplace.

4. Draw a set of directives for cleaning the flue, complete with time schedule.
5. Consult a commercial flue cleaner for rates, nature of service, and hazards resulting from failure to keep flues clean.
6. Inspect an older flue and demonstrate technique of pointing up eroded masonry.
7. Conduct a "smoke test" on a flue. The directions are:
   a. Build a fire of paper, straw, wood, or tar paper at base of flue.
   b. When smoke is rising in a dense column, tightly block the outlet at the top with a wet blanket.
   c. Inspect for smoke leaks through the masonry. Remedy the defects shown.

II. THE PROPER STORAGE OF GASOLINE, KEROSENE, AND OTHER FLAMMABLE LIQUIDS

Points for Special Emphasis (See Reference No. 18, page 117)

1. Gasoline and other petroleum products are among the principal causes of loss of life by fires on farms.
2. Such fires rank sixth among the causes of property losses in rural areas.
3. Estimates place annual loss of life from this source at 5,000 lives.
4. An additional 1,000 men, women and children suffer serious burns from this cause annually.
5. Some $5,000,000 worth of farm property is destroyed annually by such fires.
6. While petroleum products are always potentially dangerous, lives and property may be reasonably safeguarded against this hazard by proper storage and the careful handling and use of these liquids.

SOME APPROPRIATE THINGS TO DO

1. Demonstrate the high volatility of gasoline as well as the fact that vapors settle toward the floor, by the following simple experiment which should be done in a well-ventilated room or out of doors:

   Using a four-foot section of half-round metal roof spouting, inclined at an angle of approximately sixty degrees, pour one teaspoonful of gasoline into the top. After one minute has elapsed the vapors may be ignited at the top of the section. It will be observed that the flame will travel down the length of the section, proving the volatility as well as the settling of vapors.
2. Demonstrate proper technique of filling, cleaning, and igniting such pieces of equipment as stoves, lanterns, brooders, and heaters.

3. Demonstrate the value of safety-type cans for storing small quantities of flammable materials.
4. Secure illustrative literature from dealers on fuel storage facilities; make a list of their safety features, and check these against shortcomings of facilities employed at the homes of pupils.
5. A field trip to the storage yard of a dealer, to a refinery, or to the home of a pupil where proper practices are followed will be of value.
6. Sketch the location of each of the underground and aboveground type of storages for a given farm plan, keeping in mind the convenience, safety range of vapors, prevailing wind, and flammability of buildings for the farmstead.
7. Compile a list of *Do's* and *Don'ts* relative to storing, transferring, filling of tanks, and igniting of fuels for farm equipment.
8. Inspect pieces of equipment designed for combating liquid fuel fires. Demonstrations of their use should be arranged by the instructor, or through the cooperation of local fire stations. Equipment suggested for study includes:
   a. Foam-type extinguishers
   b. Carbon dioxide extinguishers
   c. Vaporizing liquid extinguishers (carbon tetrachloride)
   d. Dry-chemical extinguishers

III. ELECTRICAL INSTALLATIONS, MAINTENANCE, AND EQUIPMENT

Points for Special Emphasis

1. The use of electricity in agricultural production is growing at a rapid rate.
2. Electricity is applied in the mow-drying of hay, heating of hotbeds, brooding of checks, and other activities. In such uses fire hazards abound, and create a necessity for safeguarding against severe losses incurred through equipment failure and its improper use.
3. The rapid increase in use of current has resulted in a major wiring problem when existing systems are overloaded. Such overloading results in inefficient operation and dangerous fire hazard.
4. Electrical installations require a high degree of skill to determine proper load and to avoid hazards. Many amateurs, however, resort to "temporary" installations which violate all the codes and regulations governing proper installations.
5. The need is urgent, therefore, to acquaint potential users of electricity with the problems of electrical installations.

SOME APPROPRIATE THINGS TO DO

1. Teachers are advised to secure a copy of the *Manual of Demonstrations and Lessons in Teaching Farm Wiring,* by D. C. Sprague and J. B. Steere, Department of Agricultural Engineering, The Pennsylvania State College. This manual presupposes the use of a Demonstration Kit. (See Reference No. 20, page 117.)
   Demonstrations with the above manual and kit include
   a. The principles involved in the construction of a simple electrical circuit
   b. Common electrical units and their measurement
   c. The meaning of the unit KWH, how it is measured, and its practical use
   d. The operating and construction principles of a 3-wire, 115-230 volt circuit
   e. How wire size and load affect the safety of the wiring system and the functional use of a fuse
   f. Causes of voltage and power losses in a wire
   g. Effect of wire size on the performance of lighting, heating, and power equipment
   h. Importance of cost of electricity lost in various sizes of wire for different loads and lengths of run
   i. The procedure to follow in selecting the size of wire for a circuit
   j. The procedure in planning a wiring layout for the farmstead

k. The principles of planning a wiring system for a farm building

l. How to judge whether an existing farm wiring system meets the requirements for safe and efficient wiring, and how to plan the necessary changes in order that it will meet these requirements

2. Secure a copy of both the *National Electrical Code* and the *National Electrical Safety Code* from the Electrical Committee of the National Fire Protection Association and determine portions which apply to rural installations. (See Reference No. 14, page 117.)

(*Note:* Be sure to have all wiring installations approved by official wiring inspectors or representatives of insurance companies so as to protect the fire insurance.)

3. Visit an electrical supply dealer and examine the latest developments in installation, wire types and sizes, fuses, switches, and appliances with a view toward safety against shock and fire hazards.

4. Compile a list of common hazards in electrical installations and use of appliances, then have pupils score their homes on this basis.

5. From various safety publications, compile a list of *do's* and *don'ts* in handling electrical installations.

IV. SPONTANEOUS HEATING AND SPONTANEOUS IGNITION IN CROPS AND FARM SUPPLIES

Points for Special Emphasis

1. Spontaneous ignition is described as the igniting of materials due to heat arising from oxidation, proceeding without external source of fire or heat.

2. Fundamental causes of such combustion are few, but conditions under which fundamental factors may operate are many and varied.

3. Spontaneous heating usually starts with a slow chemical reaction or slow oxidation which generates some heat, and this process accelerates until rapid oxidation takes place.

4. Conditions which promote dangerous heating are found in large masses of materials that are not too tightly packed.

5. The presence of moisture, within limits, promotes spontaneous heating in some materials.

6. Such combustion is found in many materials which average householders do not consider subject to combustion; namely, oily rags, paint materials, etc.

SOME APPROPRIATE THINGS TO DO

1. Compile a list of instances wherein class members have observed heating, along with experiences in resulting damages, and methods of preventing and combating such heating.
2. If available, produce evidence of heating, or provide pictures. Examples: burned fibrous materials in manure piles, straw or hay from mows, moldy grain from bins, etc.
3. A practical demonstration of heating can be arranged by packing freshly chopped hay or grass (a freshly ground bag of chop, if ground on a burr mill; or feed of high moisture content, will suffice) in a deep container without lid. This should be stored for a period. The precaution must be taken in the intervening period to store this material in a safe place, such as in a masonry building or outdoors. Contrasting demonstrations may be arranged by varying the depth of stored material, ventilation of container, etc., to point out means of avoiding heating of materials.
4. Consult the Table of Materials Subject to Spontaneous Combustion, in the N. F. P. A. Handbook of Fire Protection, listing those materials commonly found on farms, their tendency toward heating, and precautions to be taken against spontaneous combustion. (See Reference No. 2, page 116.)
5. Consult your agricultural supply dealer for literature on such items as ventilated metal granaries and cribs, mow hay-drying equipment, field-chopping equipment, and preservatives used in preventing combustion in stored materials.

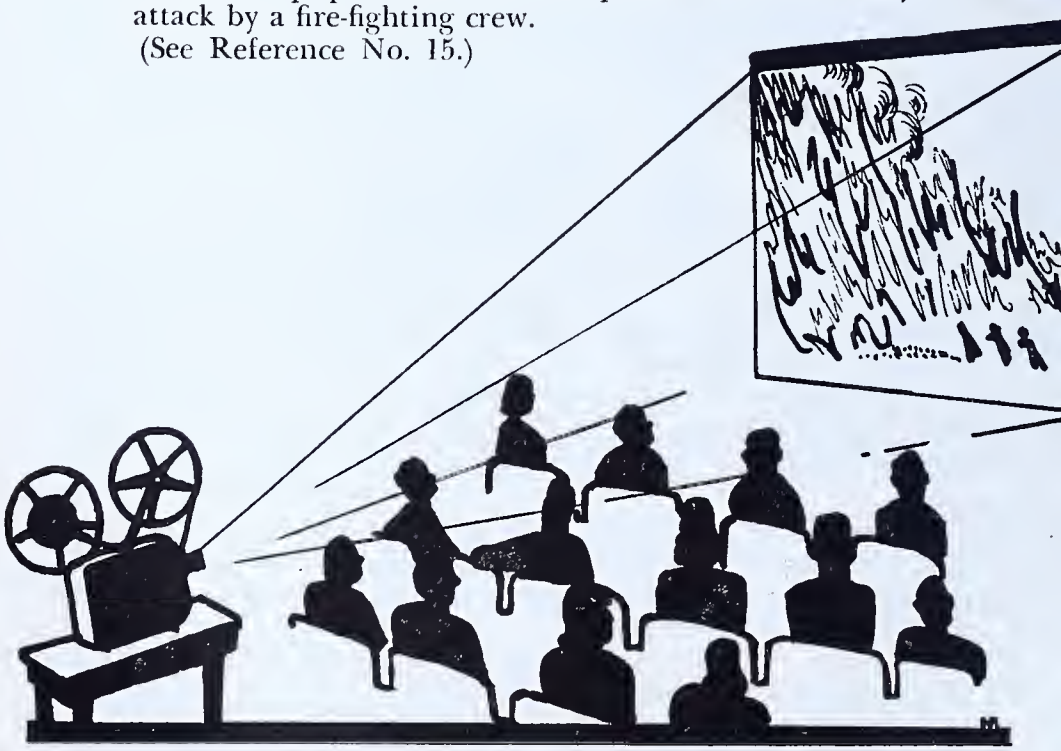
V. THE PREVENTION AND CONTROL OF FOREST FIRES

Points for Special Emphasis

1. As late as 1920 it was estimated that at least five million acres of forest soil were kept in a waste condition in Pennsylvania by fire and that the total annual fire loss to the Commonwealth was as much as $100,000,000.
2. Of Pennsylvania's original 28,000,000 acres of primeval forest there are now about 15,200,000 acres of woodland of all types from merchantable material to bushy growth of species of little value.
3. For the year 1949, Pennsylvania forest fire statistics show 1,540 fires, covering 32,723 acres, with an average of 21.2 acres per fire, resulting in an immediate damage of $95,894, and costing the State $84,257.83 to extinguish.
4. Figures such as these can no longer be ignored. It is the duty of all citizens, teachers, and pupils to promote safe and sane control of the forest fire menace.

SOME APPROPRIATE THINGS TO DO

1. Make a list of causes of forest fires in their order of prevalence.
2. Make a list of the losses, both direct and indirect, resulting from forest fires.
3. If possible, visit the scene of a forest fire, study the soil analysis, surviving plant species, evidences of resultant erosion, and evidence of wildlife.
4. Display posters on forest fire prevention both in the classroom and in a conspicuous location in the community.
5. Demonstrate the pattern taken by forest fires under the various conditions of sloping terrain, prevailing wind, and combination of both, by using large sheets of paper in an open area. For details of demonstration consult the bulletin *Wildlife*. (See Reference No. 22.)
6. Arrange for talks to classes through the local District Forester's Office and the local game protector on causes, control, and results of forest fires.
7. Show motion pictures on forest fire prevention. (See Reference No. 11.)
8. From information gathered from the Pennsylvania State Department of Forests and Waters, or from the men on duty in a State park, compile a list of privileges and obligations for persons using the State Forest areas for recreational purposes.
9. Compile a list of directions for fighting forest fires, including the methods, equipment, and techniques used, and the layout of an attack by a fire-fighting crew.
   (See Reference No. 15.)



VI. THE WORK OF THE RURAL VOLUNTEER FIRE DEPARTMENT

Points for Special Emphasis

1. The term "volunteer" covers many variations in fire department organization. Roughly half of all volunteer departments are comprised entirely of unpaid volunteers, while others maintain a paid driver whose responsibility is that of getting equipment to the scene quickly.
2. All fire departments whether volunteer or paid should be responsible to a reasonable degree to the taxpayers and citizens of their respective communities for the services they render.
3. Volunteer departments are widely credited with amazing savings to their patrons as well as providing extensive training to thousands of volunteers in all the states in the Union.
4. A widely accepted pattern in the development of rural fire departments is the levying of a small tax on assessed properties. Some are supported entirely by social activities for fund raising or through gifts or contributions.
5. It is the duty of every citizen to be familiar with the personnel, equipment, and means of summoning the local fire department.

SOME APPROPRIATE THINGS TO DO

1. Determine the status of a local volunteer department in regard to:
   a. The ordinance which creates the establishment of the department
   b. The area which is considered the patronage area of the department
   c. Sources of support from taxes, social functions, etc.
   d. Requirements for membership, facilities for training, affiliation with surrounding districts (Reference No. 21)
2. Arrange for a talk by the local fire chief or other representative regarding the points above, in addition to services rendered, problems confronting the department, recruitment of members, and equipment available.
3. Visit the local department for the inspection and demonstration of equipment.
4. Prepare a suitable index tab, bookmark, or memo card to be attached to the telephone directory of rural homes for quick reference.
5. Arrange for pupils to attend a drill, demonstration, or a training meeting at the local station, and to report upon the meeting attended.

VII. THE PLANNING OF A RURAL FIRE INSURANCE PROGRAM

Points for Special Emphasis

1. All farmers are subject to losses which can neither be predicted nor prevented.
2. In any one year, the chances for losses are relatively small, but when such losses do occur they usually create a severe financial problem.
3. In a study made by The Pennsylvania State College in 1947, eighty-three per cent of the farmers studied carried fire insurance on at least a part of their property. (See Reference No. 10.)
4. The above study further indicated that coverage in most instances was considered inadequate, lagging behind the increased worth of the holdings.
5. Ninety-six per cent of farm houses and 92 per cent of barns were partially protected, while 50 per cent of farmers studied carried insurance on their machinery and livestock, with a slightly larger portion carrying insurance on house and barn contents.
6. One house in three and one barn in five were insured for less than 65 per cent of the estimated value. This group would experience difficulty in replacing losses.

SOME APPROPRIATE THINGS TO DO

1. Have pupils conduct an informal survey of the types and extent of coverages carried against the estimated evaluation of their home buildings, equipment, and livestock. If this be confidential, pupils may do this only for their own information.
2. Secure copies of insurance policies for examination relative to types of coverage, disqualifications such as storage of inflammables, etc.
3. Invite a local insurance agent to present information before the group concerning types of coverage, the effect on the premium rates, etc., of water availability, road types, and nearness of organized fire companies.
4. A hypothetical case study may be made wherein a farm inventory is compiled, and a policy of adequate nature written to cover emergencies. Determine the cost of insurance and determine the percentage of annual income devoted to this cost.

VIII. THE CONSTRUCTION OF FARM RESERVOIRS, PONDS, AND CISTERNS

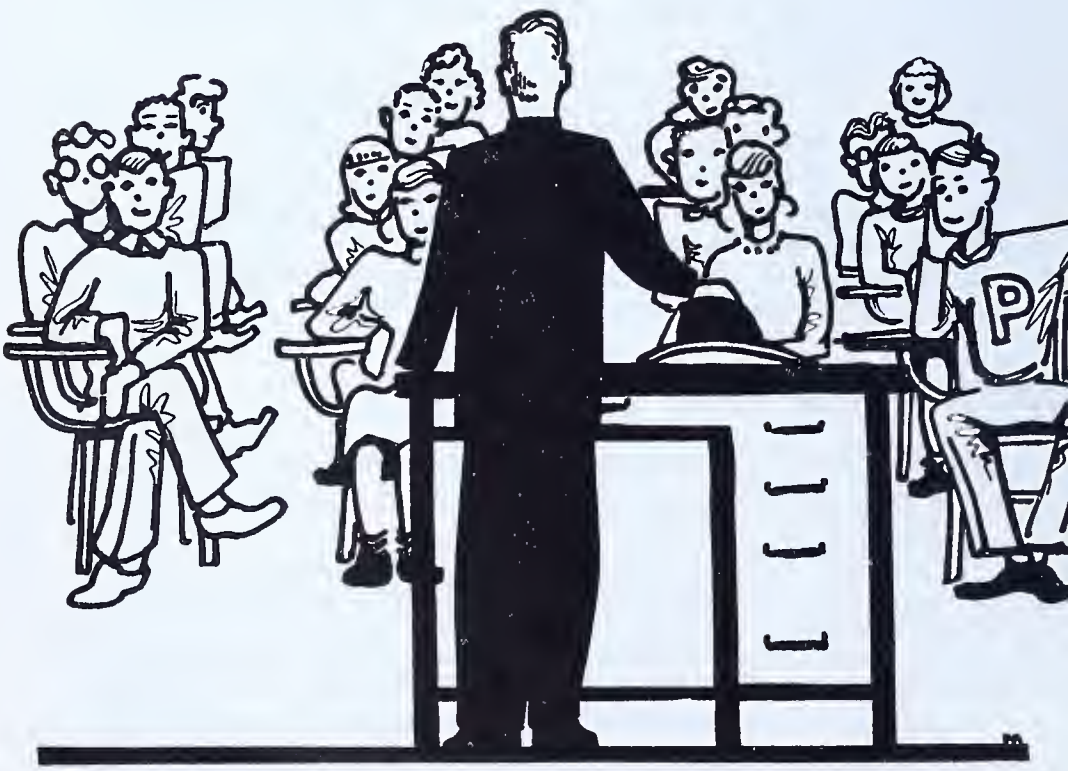
Points for Special Emphasis

1. Farms generally are lacking in a sufficient supply of water for combating destructive fires.
2. When a water supply is available, quite often it is at a great distance, or so inaccessible as to be of little real worth for fire-fighting purposes.
3. Past surveys indicate that farmers generally have given but little thought to the volume of water needed for fire prevention.
4. Farmers generally are unaware of the amount of water handled by a pumper in a given time, and the amount of water required to combat fires in such highly combustible materials as hay, or frame buildings. A rough rule for volumes of water required for a given rural fire will be found in the National Fire Protection Association Handbook as follows:
   a. Where single buildings of low construction are fired, allow two hose streams of 250 gallons per minute each, or a total of 500 gallons per minute.
   b. Where buildings are sufficiently close to permit spreading or buildings are high, large, or quite full of combustible material, 1000 gallons per minute should be provided.
5. A minimum of 10,000 gallons of water available for a minimum of thirty minutes is recommended. Very few farms are able to provide this amount.
6. A cistern will provide a quickly available supply of water easily collected.
7. The farm pond will provide the remainder of the amount required and will have such related values as a supply of water for livestock, a soil erosion prevention value, a supply of fresh fish, and a recreational value to farm families.
8. The Soil Conservation Service will assist in the determination of the cost of construction of ponds.

SOME APPROPRIATE THINGS TO DO

1. Have pupils survey their home farms to determine the amount of water available in case of emergency. Use this as a basis for a discussion of needs.
2. Have pupils make a sketch of home property location points where such ponds, reservoirs, or cisterns could be built in view of water supplies.
3. Solve questions of volume in gallons for various designs of cisterns, such as cylindrical or square cisterns, or volume of ponds of circular or rectangular design, with varying depths of water level.

4. Sketch designs of cisterns complete with filtering devices and compile a bill of materials for their construction. (For an excellent reference with health measures derived from the sanitary cistern, see Reference No. 16.)
5. Secure a copy of *Specifications for Construction of Earthen Dams* from the local Soil Conservation Office, or from the U. S. D. A. Production and Marketing Administration. (See Reference No. 19.) It is well to point out that permission must be secured from the Water and Power Resources Board of The Pennsylvania State Department of Forests and Waters when a given stream has a drainage area of 320 acres or more.
6. Visit a farm which provides a farm pond; or, if possible, attend a demonstration of the laying out or the construction of such a body of water. Observe the permit required and the problems of construction. Determine capacities and interview the farmer as to the cost of construction and the advantages derived from an existing pond.
7. Inspect an existing reservoir, or sketch a design of a recommended type with sufficient capacity to meet farm water needs, with margin for fire-fighting purposes. (See Reference No. 17.)



IX. A SURVEY OF THE FARMSTEAD WITH A VIEW TOWARD PLANNING A SCHEME FOR REDUCING RURAL FIRE LOSSES

Points for Special Emphasis

1. Most farms are lacking in facilities for preventing fires and for combating fires once started.
   a. Water supplies are limited or nonexistent.
   b. Buildings, fences, or farm installations result in congestion which prevents the bringing of equipment close to the scene of the fire.
   c. Buildings are often close together, roofs are often of inflammable materials and contents highly combustible, a combination which results in a rapid spreading of fires once started.
2. Fires often happen during the hours of darkness. This limits the effectiveness of fire companies arriving on an unfamiliar scene.
   a. Surveys show that fires most frequently result from overheated stoves in early morning hours while other duties require the attention of the farmer.
   b. Heating and lighting equipment receive more attention from the farmer during hours when he is in attendance; therefore, there is less opportunity for fires.
   c. Spontaneous heating will be detected more readly while the farmer is about the buildings. Open buildings may dissipate that heat during the day; closed buildings at night create a greater hazard.
3. Farmsteads are relatively unfamiliar to fire companies. This results in confusion, particularly at night.
   a. Few farms have ever been inspected for fire hazards, or for planning control measures for fires that may occur.
   b. Roof types, distances between buildings, building content, water sources and supplies, direction of prevailing winds are unknown by fire crews, further complicating their problem of control.
4. These points of unfamiliarity may be greatly reduced by completing the survey suggested under Some Appropriate Things to Do, and mapping farms within the patronage areas of various fire stations.

SOME APPROPRIATE THINGS TO DO

1. Take a survey of each farm or rural home in the patronage area on the form accompanying this plan. Have pupils do their own property; assign pupils to other properties. The local fire department will usually mail the questionnaires and assist farmers in making returns.

a. Reproduce a detailed drawing of the farmstead along with pertinent data on a stiff cardboard, 6″ x 8″. All sketching is done in India ink, data typed or printed on the card which is then coated with clear shellac and waterproof varnish.
b. Cards are carried on the fire truck in alphabetical order ready for study while on the way to, or arrival at the scene of the fire.
c. Upon completion of the project, have a detail of pupils accompany the firemen on a trial run to study the plan.
d. Various demonstrations can be planned and given on this device.

2. Making posters and visits to farms for survey purposes are good activities.

FORM OF QUESTIONNAIRE USED IN SURVEY AS SUGGESTED

Where is the Fire?

FELLOW CITIZEN:

If your house or barn starts to blaze, how soon can firemen be on the job?

Get ready for your fire NOW by *always* having a GOOD ROAD to a GOOD WATER SUPPLY to permit the truck to do its work.

The Pinecroft Fire Company wants to improve rural fire protection in Antis Township and vicinity by having a survey sheet worked up for every farm or other rural home.

Please answer the following questions, draw the requested sketch of your property and buildings, and return promptly to us in the enclosed envelope. No postage necessary.

Name .....

Names of Neighbors .....

Telephone number at your farm or home ..... Exchange ..... Number .....

Nearest neighbor with telephone ..... Neighbor ..... Number .....

Name of former owner .....

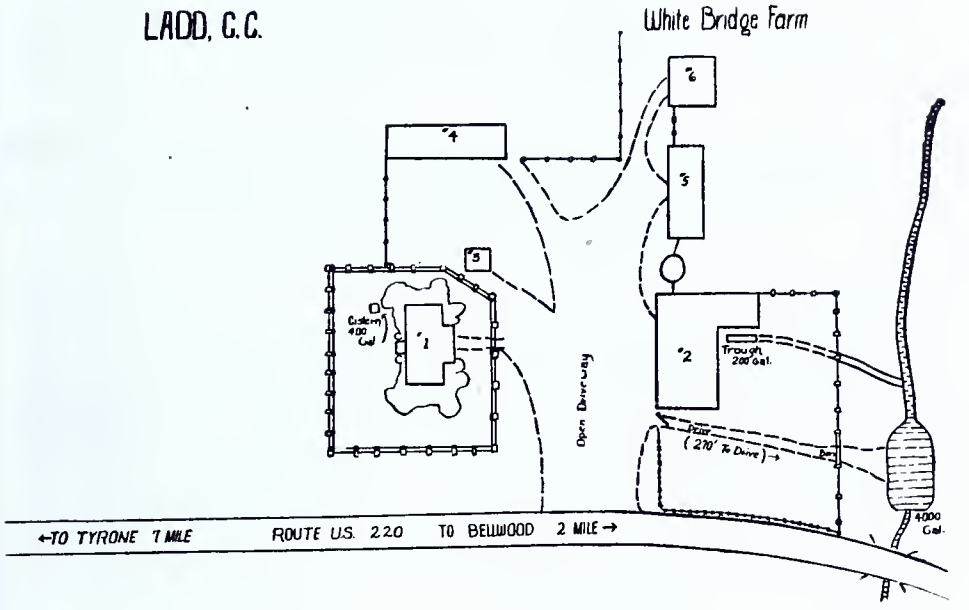
"Familiar" Name of the Farm or Property .....

Please make a sketch below, including these items:

a. Location of all buildings
b. Size of each building
c. Construction material used in each building
d. Roof material of each building
e. Distance of buildings from road, location of driveways, etc.

SAMPLE FARM SKETCH

(Obverse side)



(Reverse side)

Building Number	Size	Construction Material	Roof Type	Contents or Facilities
1. House	24′ x 30′	Brick	Slate	General Elec.
2. Barn	46′ x 70′	Frame	Sheet Iron	Dairy Barn
3. Garage	20′ x 20′	Concrete Blk.	Aluminum	Car & Truck—No Gas
4. Poultry House	20′ x 40′	Frame	Ruberoid	Brooding Equip. & Elec.
5. Machinery	20′ x 46′	Frame	Paper	Tractor & Machinery
6. Hog House	12′ x 20′	Concrete Blk.	Sheet Iron	Running Water—Low Press.

Water Supplies

Pond in creek back of barn—4,000 gal. Driveway O.K.

Watering Trough under overshot of barn—200 gal. available.

Cistern to rear of house—400 gal. Earth covers manhole.

Now please give us this information:

Source of water: Well ..... (drilled or dug) Cistern... Stream ... Pond...

Indicate source of water on above sketch: Capacity immediately available in gallons.....

How close can fire trucks get to water supply (in feet) .....

Will you provide a road at least eight (8) feet wide to water in order that trucks may reach that supply?

BIBLIOGRAPHY OF REFERENCES FOR TEACHING FIRE PREVENTION IN THE CURRICULUM IN VOCATIONAL AGRICULTURE

1. *Barn Plan Bulletin.* Chicago, Barn Equipment Association, Board of Trade Building.
2. Crosby, Fiske, and Forster. *Handbook of Fire Protection,* Tenth Edition. Boston, 10, National Fire Protection Association, 1948, 1544 pp. $9.50.
3. *Farm Fire Inspection Blank.* A single sheet check list of farm fire hazards. New York 38, The National Board of Fire Underwriters. Free. May be mimeographed for class use.
4. *Construction of Chimneys and Fireplaces,* Bulletin No. 1889. United States Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1941, 52 pp. 15¢.
5. *Fire Safeguards for the Farm.* Farmer's Bulletin No. 1643. United States Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1939, 29 pp. 10¢.
6. *Fire Safety on the Farm,* Illustrated booklet. New York 38, National Board of Fire Underwriters, 85 John St., 1948, 23 pp. Free.
7. *Fires on Farms,* Leaflet No. 44. United States Department of Agriculture, Washington, D. C., Superintendent of Documents. Government Printing Office. 1940, 7 pp. 5¢.
8. *Fire Weather.* A Free Service of Forestry Ads and Editorial Mats. Washington 6, D. C., American Forest Products Industries, Inc., 1319 Eighteenth St., NW, 32 pp.
9. *Forest Protection,* Pamphlet, 1949 Edition. Washington 6, D. C., American Forest Products Industries, Inc., 1319 Eighteenth St., NW, 8 pp.
   Charts of forest fire losses and causes of forest fires.
10. *Insurance Carried by Pennsylvania Farmers,* Bulletin No. 519, November, 1949. State College, Pa., The Pennsylvania State College.
11. *Lessons in Forest Protection,* Bulletin No. 35. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1948, 43 pp. Free.
12. *Listing of Motion Pictures on Forest Fires, Fire Fighting, and General Prevention of Forest Fires.* Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters. (Mimeographed.)
13. Motion Pictures on Fire Prevention and Control. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, Division of Farm and Home Safety. Free rental to Pennsylvania requests.
    A Word to the Wise, 16 mm. sound, 15 min. Losses due to fires.
    Crimes of Carelessness, 16 mm. sound, 11 min. Fires in homes.
    Farm Fire, 35 min., filmstrip, 16" record, 20 min. Elimination of farm fire hazards.
    More Dangerous than Dynamite, 16 mm. sound, 10 min. The forgotten electric iron, wiring and cleaning fluids.
    One Match Can Do It, 16 mm. sound, 10 min. A camper's match ignites last year's forest leaves.

14. *National Electrical Code,* Volume V. Boston, National Fire Protection Association, 60 Batterymarch St., 1949, 408 pp. $3.00
Also available from The National Board of Fire Underwriters, 85 John St., New York 38, N. Y. Single copies free. 10¢ each for large quantities.

15. *Pennsylvania Forest Protection Laws and Organization,* Circular No. 23 (revised). Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1942, 46 pp. Free.

16. *Permanent Farm Construction,* Concrete Handbook, Bulletin F-10, Third Edition. Chicago 10, Ill., Portland Cement Association, 33 West Grand Ave., 1946. Cisterns.

17. *Permanent Farm Construction,* Farm Improvements, Bulletin F-5, Second Edition. Chicago 10, Ill., Portland Cement Association, 33 West Grand Ave.

18. *Safe Use and Storage of Gasoline and Kerosene on the Farm,* Farmer's Bulletin No. 1678. United States Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office. Revised edition, 1945, 14 pp. 5¢.

19. *Soil Conservation Programs,* No. NER-1110-Pa. Production and Marketing Administration of the United States Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1947. Dams.

20. Sprague, D. C., *Manual of Demonstrations and Lessons in Teaching Farm Wiring.* State College, Penna., Department of Agricultural Engineering of The Pennsylvania State College, 44 pp.

21. *Volunteer Fire Departments for Rural and Small Communities,* 1947 Bulletin. Boston, Mass., National Fire Protection Association, 60 Batterymarch St.

22. *Wildfire,* Cornell Rural School Leaflet, Vol. 41, No. 2, Fall 1947. Ithaca, New York, New York College of Agriculture, Cornell University.

8. *Firesafety* IN THE SCHOOL SHOP

FIRESAFETY IN THE SCHOOL SHOP

By its very nature, the school shop presents many fire hazards. The following outline points out these dangers as well as the necessary action and precaution to be taken to avoid catastrophe from fire in the school shop. The instructor is the key for safety in this situation. He must not only be acquainted with all phases of safety but must also see that adequate safety instruction is provided for the development of safety attitudes and habits. This outline can serve as the basis of safety instruction as far as firesafety in the shop is concerned.

A. *Common* FIRE HAZARDS IN THE SCHOOL SHOP

A fire is generally caused by someone's carelessness. Unfortunately, in many cases the innocent suffer injury or death along with the careless. Safety records reveal the following as chief sources of shop fires:

1. Gasoline
2. Oil
3. Oily rags or waste
4. Soiled clothing, rags, and waste stored in cabinets or lockers
5. Smoking
6. Conditions resulting from poor housekeeping
7. Failure to follow instructions
8. Lack of supervision
9. Careless personal habits
10. Careless use of matches
11. Backfiring of engines due to carelessness or defective workmanship
12. Defective electric equipment due to neglect or misuse
13. Combustible materials stored near electric motors or switchboards
14. Paints, stains, and varnishes stored in improper places
15. Flammable materials stored in exits
16. Disorder

B. GOOD HOUSEKEEPING GOOD FIRE PREVENTION

Many of the fire hazards found in the school shop can be eliminated by continuous and thorough good housekeeping.

1. Benches, tables, machines, and other equipment should be kept clear of accumulations of sawdust, shavings, rags, and litter of all kinds.
2. Oils, paints, stains, thinners, varnishes, wiping-rags, and waste should be kept in an approved type of closed metal containers or cabinets. Used wiping-rags and waste should be disposed of daily.
3. Floors should never be cleaned with gasoline, naphtha, thinners, or other flammable materials. Only approved cleaning agents should be used.
4. Highly combustible materials, such as oil-soaked and paint-covered garments, rags, and waste must be disposed of promptly because of the danger of spontaneous ignition. Only approved receptacles should be used. Oily garments should never be rolled up.
5. Clean rags and waste should be stored in metal bins.
6. All paints and paint brushes should be returned to the paint cabinet when they are no longer being used.
7. Oil, grease, gasoline, or other flammable materials should be stored in approved cabinets—not in personal lockers.

8. Stairways, landings, and passageways should be kept free of loose equipment, or anything that narrows or blocks the exits.
9. Aisles should not be obstructed in any way.
10. All doorways should be kept free from obstructions.
11. Matches or cigarette lighters should never be carried where flammable liquids or solvents are being used.
12. Badly worn or damaged tools should not be used. Slipping causes sparks.
13. Chimneys, flues, and smoke pipes should be kept clean, in good repair, and properly supported.

C. FIRE DRILLS

Fire drills are held for the safety of the pupil and should be practiced often. When the fire signal is sounded it should be assumed that an actual emergency exists. It is recommended that signs with "fire drill information" be posted strategically in each shop and laboratory.

1. Every pupil should be thoroughly familiar with the fire signal for all drills.
2. Every pupil should know the location of fire extinguishers and other fire-fighting equipment.
3. Every pupil should know the exits for leaving the building from all shops.
4. Every pupil should stop activity and conversation at the first signal and leave the shop as directed and in as orderly a fashion as possible.
5. Every pupil using a machine should turn off the power immediately, even though the work in the machine may be spoiled.
6. Every pupil using an electric soldering iron should disconnect the iron and place it in a holder in the event of a drill.
7. Every pupil should be alert and follow instructions at all times.

D. FIRE–FIGHTING EQUIPMENT

The firesafety program should insure that each pupil becomes familiar with the location of fire extinguishers and other fire-fighting equipment.

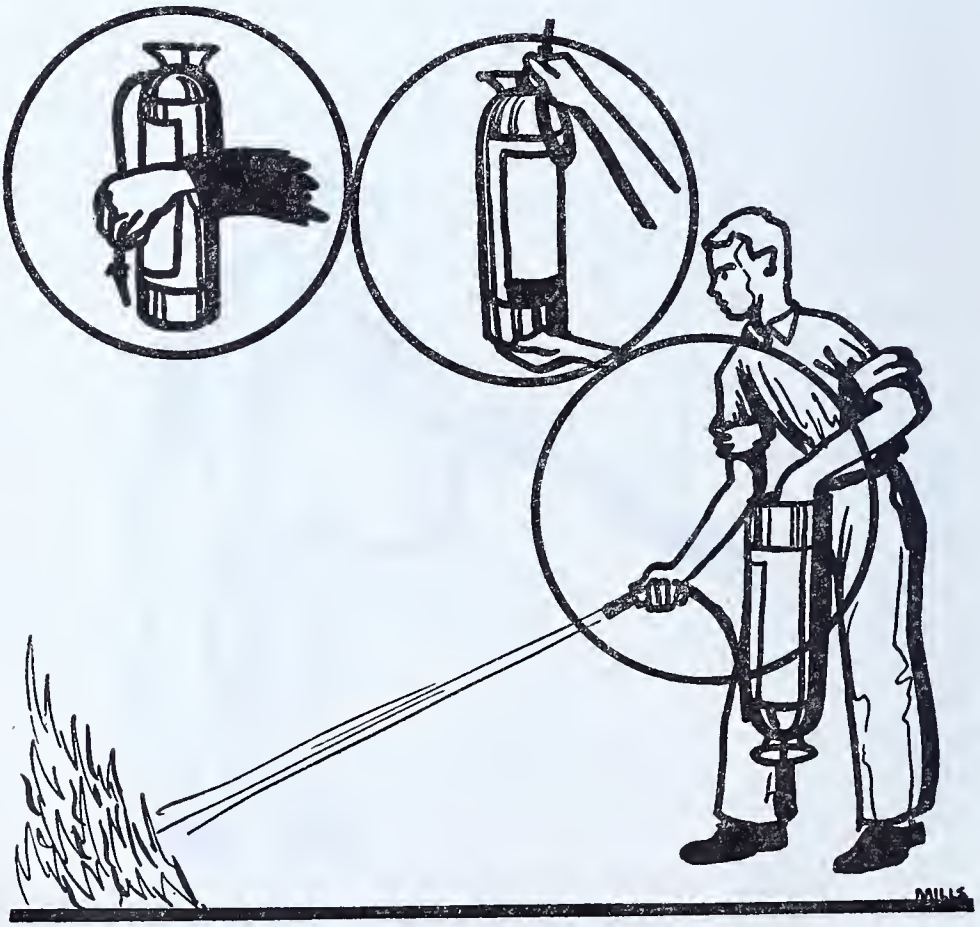
1. All fire extinguishers, as well as all sand and water pails, should be kept filled, and pails should be kept covered.
2. All fire-fighting equipment should be located where it can be reached quickly and conveniently.
3. Pupils should be instructed in the use of the various types of fire extinguishers.

a. *Carbon Dioxide Extinguisher*

This extinguisher is used on electrical fires and to confine oil fires. When applied to a fire it should be done in such a manner as to flood the fire in waves. This should be done quickly and with the draft since the extinguisher lasts only a few seconds. The flame is smothered by a heavy blanket of nonflammable gas. Carbon dioxide gas will not support life; so prolonged exposure should not be made where it has been used, especially in pits. The fifteen-pound size is effective at a range of from three to six feet, and lasts approximately 40 seconds.

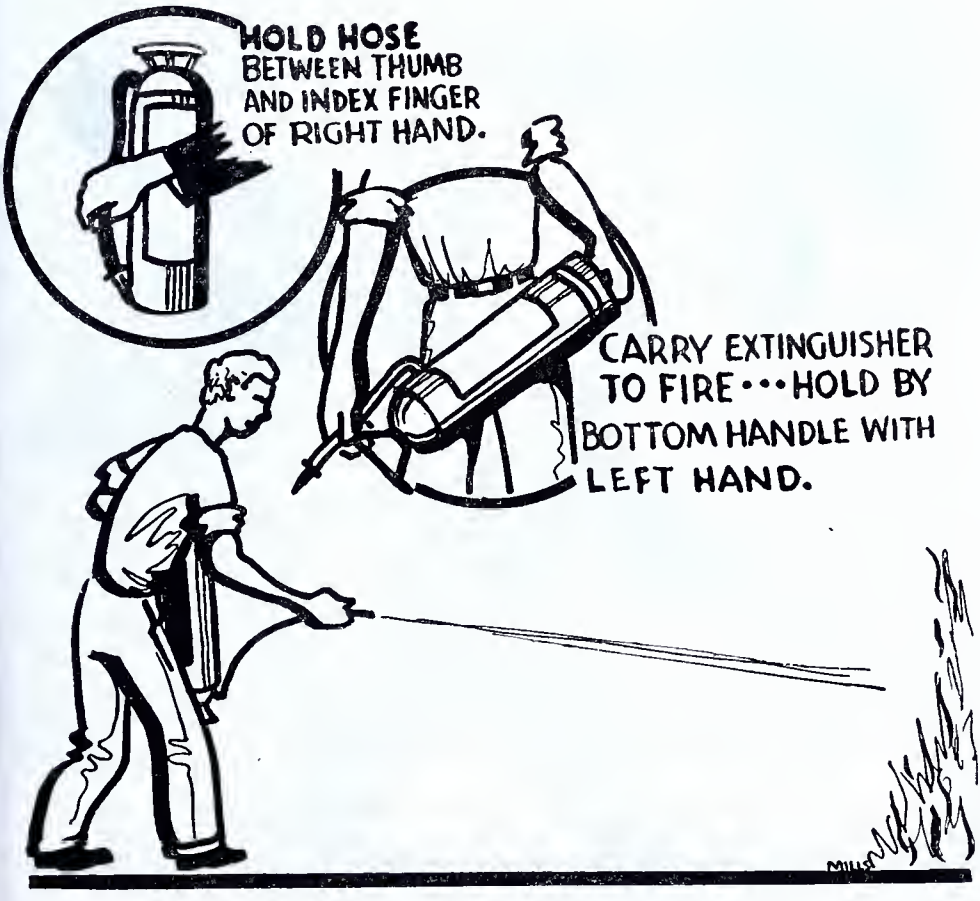
b. *Foam-Type Extinguisher*

This extinguisher should be used on gasoline, oil, oil base materials, and varnishes. Application should be made so that a complete blanket of foam covers the surface. Avoid a direct stream on oil surfaces. Foam supplies a blanket which excludes oxygen and cools and insulates the surface from heat. The blanket also prevents recurrence of the fire due to "flash backs." Extinguishers of this type should not be used on charged electrical equipment. Foam-type fire extinguishers should be protected from freezing. The effective range is from 25 to 40 feet.



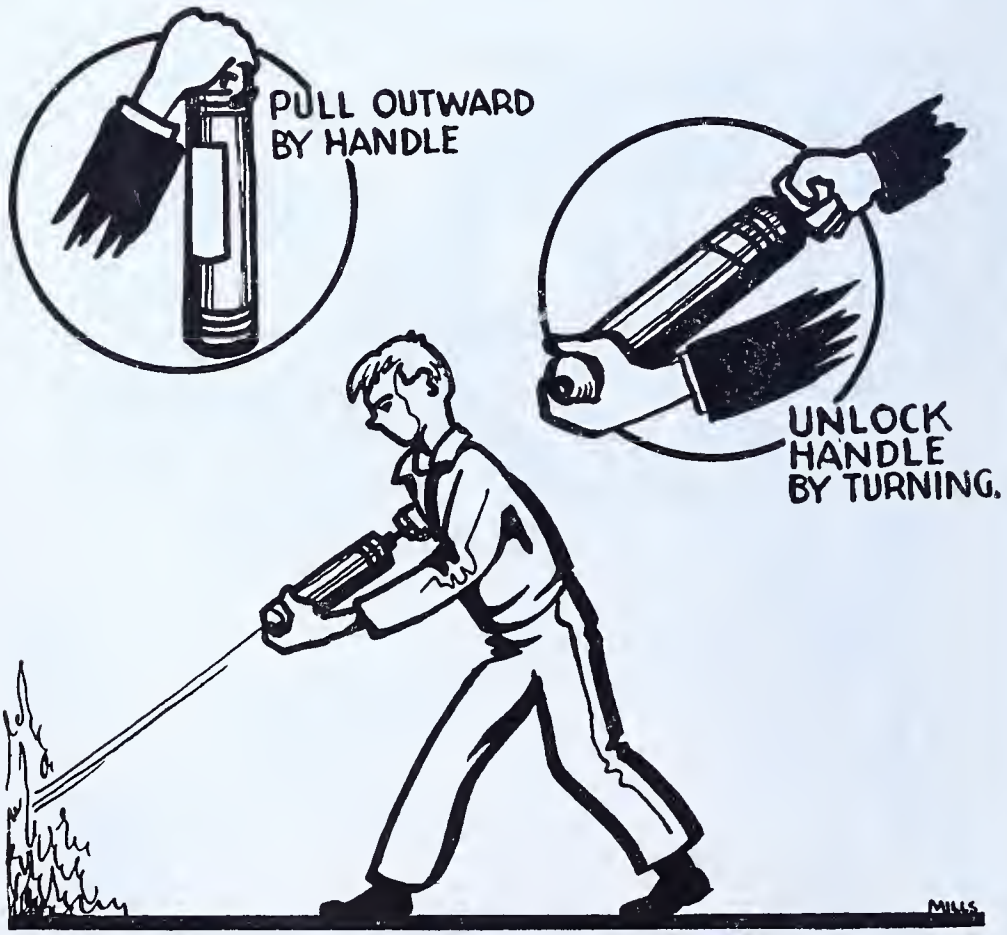
c. *Soda-Acid Fire Extinguisher*

This type of fire extinguisher is perhaps the most common in use today. It is used primarily on wood, paper, waste, and trash fires. A direct stream should be applied to the base of the flame and as close to the fire as possible for penetration. This action cools the burning surfaces below their ignition points. Soda-acid extinguishers should not be used on charged electrical equipment, varnish, oils, and other flammable liquid and should be protected from freezing. The 2½-gallon size is efficient from 30 to 40 feet and lasts from 50 to 55 seconds.



d. *Vaporizing–Liquid Type Fire Extinguisher*

This extinguisher is used primarily on electrical fires, for fires in oils and greases and is applied with the draft to the base of the flames. The flames are smothered by a heavy blanket of nonflammable gas. Breathing of the fumes should be avoided. The one-quart size is effective from 10 to 20 feet and lasts from 40 to 45 seconds.



e. *Plain-Water Extinguisher-Pump Operated*

This type of fire extinguisher should be used on wood, paper, textiles, waste, and trash fires. (If water pails are available, they should be used on the same material.) A 2½-gallon size is effective from 30 to 40 feet and lasts from 50 to 55 seconds. This extinguisher is pumped by hand.

f. Loaded-Stream Extinguisher

There are two types: the Approved Hand type made in liquid capacity of 1, 1¾, and 2½ gallons, respectively; and the Approved Wheeled type, made in liquid capacity of approximately 17 gallons and 33 gallons. These appliances are effective on fires in ordinary combustible materials (such as wood, paper, textiles, rubbish, etc.), i. e., on Class "A" fires where the quenching and cooling effect of quantities of water or a solution containing a large percentage of water is of first importance. This extinguisher is also effective on fires in oils and greases. Their use in connection with fires in electrical equipment, such as panelboards, switchboards, motors and the like is not recommended. The force, length and duration of the stream are not dependent upon the operator. The chemical used is a solution of an alkali-metal salt with a freezing point of 40° F. below zero.

g. Dry-Chemical Extinguishers

Approved hand types are made in sizes having a normal capacity of 2½ to 30 pounds of dry chemical. The approved wheeled types have normal capacities of 150 and 350 pounds of dry chemical. The fire extinguishing agent used is a specially treated bicarbonate of soda in dry powder form with a cartridge of carbon dioxide or nitrogen for expelling it. These extinguishers are effective on fires of flammable liquids, greases, etc., in open vessels or on floors, i. e., on Class "B" fires where the cloud of chemical may be employed to separate the flame from the burning surface. They are effective on incipient fires in electrical equipment, i. e., on Class "C" fires where a nonconducting extinguishing agent is of importance. They are not effective on deep-seated fires of ordinary combustible materials, such as wood, paper, textiles, and rubbish which require the quenching and cooling effect of water for complete extinguishment, but they may be of value for surface fires in small quantities of such material where the smothering effects of the gas may be utilized.

(Note: See "General Bibliography of Books and Pamphlets," page 143, for NBFU Pamphlet No. 10 listed under Standards of the National Board of Fire Underwriters.)

E. INSPECTIONS

A definite procedure should be set up for periodic inspections of fire-fighting equipment, storage lockers and cabinets, and other safety devices. Inspections should be made either by shop personnel or by some other designated safety organization.

1. Each shop instructor should inspect fire extinguishers and other fire-fighting equipment at least once each week.
2. Each shop instructor should inspect chemical and paint cabinets periodically. The date of such inspection should be noted on or in the cabinet inspected.
3. Each shop instructor should inspect the first aid cabinets in his area at least once a week for effectiveness of the supplies contained in them. Old or ineffective supplies should be discarded and replaced. Those used should be replaced as soon as possible.
4. Each instructor should inspect and operate the fire doors between shops, classrooms, or laboratories to see that they are in proper working condition.

F. *Fire Precautions* IN THE VARIOUS SHOPS

1. *Auto Shop*

a. Gasoline should always be stored in safety cans.
b. Gasoline, oil, or kerosene that has been spilled should be wiped up immediately.
c. Oily rags and waste should be deposited in approved self-closing containers and emptied daily.
d. Engines should not be started unless a fire extinguisher or a bucket of sand is readily available.
e. Engines should not be started if the gasoline line or gasoline tank is leaking.
f. Engines should not be started until all electrical equipment, fuel connections, and insulation are in perfect order.
g. Engines should not be started until the ignition is timed and the air cleaner is in place.
h. Gasoline should not be used for washing.
i. Live or "hot" wires should be kept away from gasoline fires and carburetors.
j. Short circuits should be avoided.
k. Ground cables should be connected last when installing batteries.

l. When it is necessary to transfer gasoline from one container to another, the containers should be kept in contact with each other. This will prevent sparking by "bleeding" off any electrical charge.

m. A battery should not be left in an automobile or truck or overnight in the shop without first disconnecting the ground strap.

n. Tools should never be left lying on top of the battery. They may cause a short circuit.

o. Batteries should be protected from open flames.

p. Unsafe matches or highly flammable materials should not be carried in the pocket.

q. Avoid causing friction near gasoline. Sparks may result when using a wiping cloth or striking two pieces of metal together during a cleaning process. This may cause a fire.

2. *Metal Shop*

a. Flammable materials should be kept away from furnaces or heated metals.

b. Oily rags and waste must be deposited in approved type of container and emptied daily.

c. Gas, bench, and melting furnaces should be handled properly:
   (1) The pilot light should be lit before the gas is turned on.
   (2) Flammable materials should not be stored or placed near furnaces.
   (3) The furnace cover should be kept in place except when heating the solder pot.

d. Arc welding can be dangerous:
   (1) All connections on the welding equipment should be made tight before welding.
   (2) Disconnect knife switches when leaving welding booth.
   (3) Care should be taken to prevent the cable from touching hot metal.

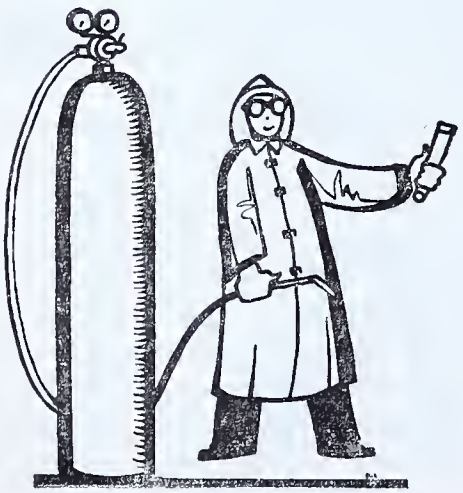
e. Oxyacetylene welding requires many precautions:
   (1) Oil should not be used on any part of the valves or welding torch connections.
   (2) All hose connections should be tight before welding is begun.
   (3) The valve on the acetylene torch should never be opened more than ⅛ of a full turn when lighting the torch.
   (4) A friction torch lighter should always be used.
   (5) Always use the maximum amount of gas for the size of welding tip being used. An insufficient supply of gas will cause a backfiring of the flame and the scattering of the hot metal.
   (6) Hot metal should be kept away from the hose.
   (7) The gas should be shut off at the tank when welding is completed.
   (8) The instructor should be notified when the odor of gas is noticed or a leak is heard.
   (9) A leaking gas connection should not be tested with a flame or lighted torch.
   (10) Tanks or containers which have contained flammable materials should not be welded or soldered.
   (11) Cutting should not be done where there is a possibility of setting fires from the sparks.
   (12) Acetylene cylinders should be kept as far away from fire as possible.
   (13) Acetylene and oxygen cylinders should be stored in a place free from sudden changes in temperatures, such as are caused by radiators, steam pipes, and furnaces.
   (14) Oxygen cylinders should not be stored near combustible materials. Oxygen will not burn but will support burning and will cause other materials to burn more readily.
   (15) An approved fire extinguisher should be at hand during operations.

3. *Electric Shop*

a. Flames and sparks should be kept away from storage batteries.
b. Flammable materials should not be stored near motors, generators, rectifiers, rheostats, or other devices which cause sparking or heat.
c. Electric plugs, cords, switches, outlets, and connections should be in good condition before using.
d. Electrical appliances and devices should be turned off or disconnected when not in use.
e. Defective cords, plugs, switches, and appliances should be reported to the instructor.
f. Multiple plugs should not be used in electrical wall outlets.
g. Semipermanent electrical connections should not be made to wall outlets.
h. If storage batteries are charged, ventilation should be provided. Storage batteries being charged give off hydrogen.

4. *Woodworking Shop*

a. Rags and waste having paints, oil or stain on them should be placed in approved-type covered metal containers and emptied daily.
b. Shavings, sawdust, and litter should be removed at the end of each class.
c. Worn and defective tools may cause sparks. Keep all tools in good condition.
d. Electric cords, switches, and plugs should be checked before using portable electric hand tools.



G. GENERAL FIRE PRECAUTIONS FOR ALL SHOPS

1. *Blow Torch*

a. Filling of the blowtorch should always be done outside the building.
b. The blowtorch should not be filled over half-full.
c. The blowtorch should not be overprimed. Overpriming may result in a serious fire and possible explosion.
d. Excessive pressure should not be made when pumping air into the blowtorch.
e. The blowtorch should be thoroughly dry of fuel on the outside before the torch is lighted.
f. Adequate fire-fighting equipment should be readily available before using the blowtorch.
g. The flame of the blowtorch should be kept away from flammable material.
h. The blowtorch must be used continuously in the proper manner or turned off.

2. *Soldering*

a. A soldering furnace should not be lit without the instructor's permission.
b. A friction type of lighter should be used to light a soldering furnace.
c. The soldering copper should not be overheated.
d. A hot soldering copper should not be placed on a wooden bench.
e. The gas jets of a soldering furnace should not be tampered with.
f. Any gas odors should be reported to the instructor.

3. *Electricity*

a. Electric cords should never be used without first inspecting them.
b. Electric cords should never be placed over nails, bolts, or sharp edges.
c. Electric cords should never be permitted to contact oil, chemicals, or hot surfaces.
d. Connections should never be made to electric light sockets for the purpose of operating electrical appliances, portable lamps, or light extensions.

e. Electric current should be turned off from all electrical appliances and all other electrically driven equipment when they are not in use. The instructor should make sure this is done at the end of a class and at the end of the day.

f. Electricity should be turned off during fire drills even though work may be spoiled as a result.

g. Multiple plugs should never be used in electric wall sockets.

h. The brushes of all electric motors and generators should be inspected and adjusted periodically.

4. *Illuminating Gas*

a. Friction lighters should be used at all times. (An exception is made for lighting a muffle furnace.)

b. Rubber hose or hose with rubber connections should not be used as a connection for burners or gas stoves.

c. Gas stoves or hot plates should not be placed upon a wooden top table or other surface not protected by metal, asbestos, stone, or other nonflammable material.

d. Gas should be completely turned off when not in use.

e. Gas should be turned off during fire drills even though the work may be spoiled as a result.

f. An asbestos fire blanket should be available at all times.

5. *Storage of Flammable Liquids*

a. Flammable liquids should be stored only in designated approved type containers and the designated containers should not be used for any other type of liquid.

b. Main supplies of flammable liquids should be stored in areas isolated from the shop and building.

c. Open containers should never be used for the storage of flammable liquids and containers should be sealed after being used and when empty.

d. Storage cabinets should be of metal with double walls, allowing at least 1½ inch air space. Cabinets should be appropriately marked as to contents.

6. *Miscellaneous*

a. Ashes should never be stored in combustible containers.
b. Combustible materials should never be stored near steam lines. If such a condition is unavoidable, steam lines should be properly shielded.
c. Drip cups should be provided for the oil bearings of motors, blowers, and their shafting.
d. Forge smoke pipes should be clear of accumulations of soot.
e. Furnaces, ovens, and forges should be shielded from flammable materials near them. If set on benches they should have ample shielding and air space between the heating unit and the bench.

H. CHEMICALS USED IN SCHOOL SHOPS

Laws governing the storage of combustibles differ in the various states, cities, and towns. A shop instructor should know whether permits are required for the storing of such materials in his building or classroom. The following precautions should be observed in school shops or classrooms wherever chemicals are used or stored.

1. Chemicals such as methyl or ethyl alcohol, benzine, benzol, acetone, ether, carbon disulphide, and other similar combustibles which are highly flammable and volatile, must be stored in separate metal cabinets. These cabinets should be located in a cool place and away from open flame.
2. Oxidizing agents such as nitrates, chlorates, and chromates should be stored in small quantities and in separate metal cabinets.
3. Acids such as nitric, sulphuric, hydrochloric, phosphoric and hydrofluoric, commonly called mineral acids, and the organic acids should be kept away from all other chemicals. If breakage occurs, the acids should be flushed with water and neutralized with sodium carbonate or sodium bicarbonate.
4. White phosphorus sticks should always be covered with water, and metallic sodium and potassium should always be covered with kerosene. Only small quantities should be stored.
5. Containers should never be placed on shelves and in cabinets without labels. A new label should never be pasted over an old one.
6. Cabinets used for chemical storage should be inspected regularly. It is advisable to post the date of each inspection.
7. Cabinets used for chemical storage should be conspicuously marked as to content and include instructions as to fire-fighting procedure.
8. Combustible and other materials considered dangerous should be locked securely in metal cabinets. Only the instructor should have access to such cabinets.

SUMMARY

1. *Fire-fighting Equipment*

a. There should be an adequate number of fire extinguishers of approved types and other fire-fighting equipment located at convenient points throughout the school shop.
b. Pupils should be instructed as to the location of fire extinguishers and fire-fighting equipment in their work areas.
c. Pupils should be instructed in the use of the various types of fire extinguishers in relation to the different types of fires which might occur.

2. *Firesafety Programs*

a. The danger of fire in the school shop will be greatly decreased if fire drills, fire-fighting demonstrations, firesafety campaigns, fire prevention posters and first aid courses are brought to the attention of the students at regular intervals. Programs of this nature can be carried on by shop personnel, and on occasion by State and local fire marshals, firesafety specialists, fire department officials, and fire insurance agencies.
b. A systematic plan of training for shop safety should also include firesafety. Through such a plan the beginning pupil will soon acquire the correct habits of performance and housekeeping which will make him a safe and desirable workman.
c. A safety program cannot achieve maximum success unless it is considered and conducted as an integral part of the teaching program.

3. *Other Preventive Measures*

a. Good housekeeping is one of the main factors in eliminating fires in the school shop. Litter of all kinds, highly volatile and combustible materials, worn or defective tools and equipment and loose materials should all receive proper attention.
b. The elimination of certain common fire hazards should be a MUST in every school shop. Fire hazards have been greatly reduced by supplying each shop with proper storage cabinets, lockers, and containers, and by eliminating smoking and the careless use of matches.

c. The fact that constant supervision is essential to good fire prevention is well established. Supervision will prevent careless use of materials and equipment as well as disorder in the school shop. Good supervision will tend to challenge a pupil to follow instructions and will aid in the correction of careless personal habits, often a cause of school shop fires. Good housekeeping can be maintained at all times if there is constant supervision.

SECTION FIVE

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GENERAL BIBLIOGRAPHY OF BOOKS AND PAMPHLETS

Partial List of References for Teachers and School Personnel

[For a more comprehensive bibliography see: *Fire Prevention and Protection, a Bibliography.* National Commission on Safety Education, National Education Association, 1201 Sixteenth St., NW, Washington 6, D. C., 1949, 36 pp. 25¢.]

Accident Facts. National Safety Council, 425 North Michigan Ave., Chicago 11, 1950, 97 pp. 60¢.

Barn Plan Bulletin. Barn Equipment Association, Board of Trade Building, Chicago.

Bill Scott, Forest Ranger. Transcriptions to teach Forest Conservation in the Classroom and by radio. U. S. Department of Agriculture, Forest Service, Washington 25, D. C. Also available from U. S. Office of Education.

There are twelve episodes of fourteen minutes each, designed for playback equipment adapted to 33 1/3 RPM. They are not suited to normal phonograph speed of 78 RPM. Scripts are also available. Write for information.

Bruere, Martha Bensley. *Your Forests.* J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5. 1945, 159 pp.

Building Codes, Their Scope and Aims. The National Board of Fire Underwriters, 85 John St., New York 38, N. Y., 1939, 22 pp. Free.

Building Exits Code. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1946, 112 pp. $1.00.

Bulletin 233-B. The Elementary Course of Study. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, 1949, 587 pp. Distributed to teachers through the responsible superintendent. Otherwise, $2.50.

Bulletin 243, Curriculum Improvement by a Secondary School Faculty. Harrisburg, Commonwealth of Pennsylvania, Department of Public Instruction, 1950, 165 pp. Free in limited quantity to schools. Otherwise, 75¢.

Burning Your Dollars. American Forest Products Industries, Inc., 1319 Eighteenth St., NW, Washington, D. C., 1948. Available in quantity to classroom teachers. An illustrated leaflet on protection of forests from fire.

Community Forests in Pennsylvania. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1948, 31 pp.

Construction of Chimneys and Fireplaces, Farmers Bulletin No. 1889. U. S. Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1941, 52 pp. 15¢.

Construction of School Buildings and Improvement of Existing Structures. The National Board of Fire Underwriters, 85 John St., New York 38. Free.

Crosby, Fiske, and Forster, *Handbook of Fire Protection,* Tenth Edition. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1544 pp. $9.50.

A Curriculum Guide to Fire Safety for Elementary Schools. Bulletin No. 8, 1946. Federal Security Agency, U. S. Office of Education, Washington, D. C., Superintendent of Documents, Government Printing Office, 31 pp. 10¢.

Why, where, and how the schools can teach firesafety; what to teach and how to measure the results; dictionary of firesafety terms.

Cutter, Walter, *Panic and Its Control.* National Conservation Bureau, Association of Casualty and Surety Executives, 60 John St., New York 38, 1943, 15 pp.

Danger, Handle with Care. Hartford, Conn., Aetna Life Affiliated Companies, 4 pp. Single copy free.

Advice for handling electrical fixtures, fuses, cords, and wires.

deLemos, John, *Planning and Producing Posters.* Worcester, Mass., The Davis Press, Inc., 1943, 54 pp.

Useful for art classes in making fire posters.

Domestic Oil Heating. Fire Prevention Bulletin No. 22. Washington, D. C., Chamber of Commerce of the U. S., 1941, 4 pp. 10¢.

Dougherty, Thomas F., and Kearney, Paul, *Fire.* G. P. Putnam's Sons, 121 Avenue of the Americas, New York 13, 1931, 245 pp. $3.50.

An account of forty-three years of fire fighting by New York City's Assistant Fire Chief. Should be a part of the high school library.

Dunshee, Kenneth Holcomb, *Engine! Engine!* Home Insurance Co., 59 Maiden Lane, New York, 1939, 63 pp.

The story of fire protection with photographs and illustrations of early fire engine equipment and clothing. High school level.

Enemies of the Forests. U. S. Department of Agriculture, Forest Service, Washington, D. C., 1946, 4 pp. Free to teachers.

Leaflet discusses enemies of the forest and how to combat them.

Farm Fire Inspection Blank. The National Board of Fire Underwriters, 85 John St., New York 38. Free.

A single sheet check list of farm fire hazards. May be mimeographed for class use.

Fire Escapes. Springfield, Ill., Illinois Department of Public Safety, Division of Fire Prevention, 1944, 32 pp. Free.

Fire Fighting on Farms, Miscellaneous Publication No. 612, U. S. Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1946, 54 pp. 15¢.

Fire Foibles. National Fire Protection Association, 60 Batterymarch St., Boston 10, 12 pp. Single copy free.

A series of cartoons, the work of Abner Deen, a well-known American artist. Useful for art classes and other general class use.

The Fireman and Electrical Equipment, Bulletin S46. International Association of Fire Chiefs, 22 E. 38th St., New York. 50¢.

Fire-Hazard Properties of Certain Flammable Liquids, Gases, and Volatile Solids, Revised edition. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1941, 48 pp. 25¢.

Fire Is a Mad Beast. A Poster No. P88. Harrisburg, Commonwealth of Pennsylvania, Game Commission. Free.

Fire Prevention Guide. Stevens Point, Wisconsin, Hardware Mutuals, 19 pp. Limited quantity free.

Suggestions for home and school safety.

Fire Prevention and Protection as Applied to Hotels, Reprint. The National Board of Fire Underwriters, 85 John St., New York 38, 1948.

Fire Prevention and Protection as Applied to the Public and Parochial Schools. The National Board of Fire Underwriters, 85 John St., New York 38, 1939, 18 pp. Free.

Fire Prevention and Safety Handbook for Texas Public Schools. Board of Insurance Commissioners, Fire Insurance Division, 1949, 63 pp.

Fire Prevention Week Handbook. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1945, 12 pp. 15¢.

Fire Protective Construction on the Farm, Revised edition, Farmer's Bulletin No. 1590, U. S. Department of Agriculture. Washington, D. C., Superintendent of Documents, Government Printing Office, 1939, 22 pp. 5¢.

Fire Safeguards for the Farm, Farmer's Bulletin No. 1643, U. S. Department of Agriculture. Washington, D. C., Superintendent of Documents, Government Printing Office, 1939, 29 pp. 10¢.

The Fire Safe Home. The National Board of Fire Underwriters, 85 John St., New York 38, 19 pp. Free.

A guide for householders and students for making the home firesafe. Illustrated.

Fire Safety Check List for Your Home. The National Board of Fire Underwriters, 85 John St., New York 38. Free.

A single sheet pamphlet.

Fire Safety on the Farm. The National Board of Fire Underwriters, 85 John St., New York 38, 1948, 23 pp. Sample copy free to schools and libraries. Larger quantities 5¢.

The causes of fires; what to do when fire breaks out in the home, community fire protection, first aid and selected bibliography. Illustrated.

Fire Safety in the Hotel of the Future, Bulletin S-1. International Association of Fire Chiefs, 22 E. 38th St., New York. 15¢.

Fire Safety Quiz. National Fire Protection Association, 60 Batterymarch St., Boston 10. Free in small quantities.

National Commission on Safety Education, National Education Association, Washington 6, D. C.:

Fire Safety for Teachers of Primary Grades, 1950, 24 pp. Single copy, 50¢.
Fire Safety for Teachers of Intermediate Grades, 1950, 32 pp. Single copy, 50¢.
Fire Safety for Junior High Schools, 1950, 32 pp. Single copy, 50¢.
Fire Safety for Senior High Schools, 1951, 24 pp. Single copy, 50¢.

Fire Safety Rules for Hotel Guests. The National Board of Fire Underwriters, 85 John St., New York 38. Free.

A small four-page pamphlet.

Fires on Farms, Leaflet No. 44. U. S. Department of Agriculture. Washington, D. C., Superintendent of Documents. Government Printing Office, 1940, 7 pp. 5¢.

Fire Weather. American Forest Products Industries, Inc., 1319 Eighteenth St., NW, Washington 6, D. C.. 32 pp.

A free service of forestry ads and editorial mats.

First Aid. New York, Metropolitan Life Insurance Company, 33 pp. Illustrated.

What should be done before the doctor arrives. Shock, wounds, asphyxia, artificial respiration, poisons swallowed, bone and joint injuries, heat and cold, unconsciousness, common ailments, and first-aid supplies are discussed.

First Aid to the Injured. Hartford, Conn., Aetna Life Affiliated Companies, 15 pp. Single copy free.

Handy booklet describing correct first-aid treatment for many injuries and accidents.

First Aid Suggestions. Wausau, Wis., Employers Mutual Insurance Company, 8 pp. Limited quantity free.

Simple first-aid suggestions and a list of supplies for the first aid cabinet.

First Aid Textbook, Corrected Edition. Philadelphia, The Blakiston Co., 1940, 256 pp. 50¢.

The Red Cross Handbook.

First Aid Textbook for Juniors. Philadelphia, The Blaikston Co., 1949, 132 pp. 35¢. The Red Cross Handbook.

First Steps in Health Education. New York, Metropolitan Life Insurance Company, 32 pp. Single copy furnished to teachers and administrators free.

Outlines activities which will afford firsthand experiences in acquiring knowledge, habits, and skills in daily living.

Forest Areas in Pennsylvania. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1948, 69 pp.

Forest Protection, Pamphlet, 1949 Edition. American Forest Products Industries, Inc., 1319 Eighteenth St., NW, Washington 6, D. C., 8 pp.

Charts of forest fire losses and causes of forest fires.

Forest Trees to Plant in Pennsylvania. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1948, 34 pp.

Friend or Foe. Hartford, Conn., Aetna Affiliated Companies.

Outlines measures of firesafety which should be practiced in every home.

Hawkins, Charles C., author-editor, *Fire Prevention Education, Part I and Part II.* The National Board of Fire Underwriters, 85 John St., New York 38, 1945, 355 pp.

This book and a smaller volume containing Part I are now out of print. These books, however, are valuable, if available, for the high school library.

Hidden Hazards. Insurance Company of North America, 1600 Arch St., Philadelphia, 1946, 64 pp. Free.

A guide to help make homes safe through the selection of proper materials and proved methods of construction.

Holman, A. T., *Fire Fighting on Farms,* U. S. Department of Agriculture, Miscellaneous Publication No. 612. Washington, D. C., Superintendent of Documents, 1946, 54 pp. 15¢.

A Home Inspection Blank for School Children. The National Board of Fire Underwriters, 85 John St., New York 38.

Reproduced in Section III, page 59, by permission of The Board.

How to Prevent Fire in the Home. Insurance Company of North America, 1600 Arch St., Philadelphia, 1946. Free.

Insurance Carried by Pennsylvania Farmers, Bulletin No. 519, November, 1949. State College, The Pennsylvania State College.

Keep Your Home from Burning, No. G-1. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1944.

A single sheet pamphlet on causes and spreading of fires in homes.

Lange, Herbert W. *Demonstration Lecture on Extinguishing Flame.* Chicago, Underwriters Laboratories, Inc., 17 pp. Free.

Leatherman, Martin, *Fireproofing Christmas Trees,* U. S. Department of Agriculture, Bureau of Agricultural Chemistry and Engineering Leaflet No. 193. Washington, D. C., U. S. Government Printing Office, 1939, 5 pp. Illustrated.

Lent, Henry B., *The Fire Fighter.* The Macmillan Co., 60 Fifth Ave., New York 11.

A story of a fire-boat in New York harbor. Junior high school level.

Lessons in Forest Protection, Bulletin No. 35. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1946, 43 pp. Free.

Listing of Motion Pictures on Forest Fires, Fire Fighting, and General Prevention of Forest Fires. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters. (Mimeographed)

Little, Robert W., *Flameproofing Textile Fabrics.* Reinhold Publishing Corp., 330 W. 4th St., New York, 1949.

Lynde, Carleton John, *Electricity and Magnetism,* Science Experiments with Ten-Cent Store Equipment. Scranton, International Textbook Company, 1946.

Lynde, Carleton John, *Experiments on Heat with Home Equipment,* Second Edition. Scranton, International Textbook Company, 1949.

Make Your Home Safe from Fire. Harrisburg, Spark's Club of Mutual Fire Insurance Companies.

A Home Self-Inspection Blank.

Materials to Help Teach Forest Conservation, Bulletin No. K-28. Washington 25, D. C., U. S. Department of Agriculture, Forest Service, 5 pp. Free.

List of materials, including curriculum pamphlets, audio-visual aids, bulletins, bookmarks, teaching outlines, and brief pamphlets, all designed to help teachers and leaders of organized groups, both young and adult, to teach forest conservation.

National Electrical Code, Volume V. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1949, 408 pp. $3.00.

National Fire Protection Test for High School Students and Adults. New York, Center for Safety Education, New York University, 1942. $2.50 per 100.

A multiple-choice test on the prevention and control of fire.

National Safety Education Test—General Safety Education Test for Junior High School Pupils. New York, Center for Safety Education, New York University, 1940. $2.00 per 100.

Part true-false, part multiple-choice test covering both information and attitudes.

Our Most Shameful Waste. Available from Department of Forests and Waters, Harrisburg, Commonwealth of Pennsylvania.

A folder of posters, newspaper ads, bookmarks, blotters, publicity material and campaign procedures. This folder with pockets for insert materials and sample posters features the campaign to prevent forest, wood, and range fires. A public service project of the Advertising Council, Inc., U. S. Government Printing Office, Washington 25, D. C. Form 858868.

Parker, Bertha Morris, *Fire, Friend and Foe,* Basic Science Education Series. Row, Peterson and Co., 131 E. 23rd St., New York 10, 1941, 36 pp. 36¢.

What is fire, what materials will burn, fire prevention and protection. Useful for learning activities in high school.

Pennsylvania Forest Protection Laws and Organization, Circular No. 23 (Revised). Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1942, 46 pp. Free.

Pennsylvania Game News, a monthly publication of 32 pages. Harrisburg, Commonwealth of Pennsylvania, Game Commission. Subscription rates: 1 year, $1.00; 2 years, $1.50; 3 years, $2.00.

Contains stories, articles, and notes of interest to hunters, trappers, and other wildlife enthusiasts.

Permanent Farm Construction, Concrete Handbook, Bulletin F-10, Third Edition. Portland Cement Association, 33 West Grand Ave., Chicago 10, 1946.

Permanent Farm Construction, Farm Improvements, Bulletin F-5, Second Edition. Portland Cement Association, 33 West Grand Ave., Chicago 10.

Protecting the Industrial Plant Against Fire and Sabotage, Bulletin S-12. International Association of Fire Chiefs, 22 E. 38th St., New York. 15¢.

Protection of High Value Areas, National Automatic Sprinkler Association. Washington, D. C., The Chamber of Commerce of the U. S., 1948, 24 pp. Free.

Protection of Life and Property Against Lightning. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1937. 50¢.

Public Fire Protection Project No. 1. National Fire Waste Council and the Chamber of Commerce of the U. S., 1615 H Street, NW, Washington, D. C., 1947, 10 pp. 5¢ in lots of 50 or more. Single copies free.

Suggestions for survey by a committee.

Put That Fire Out. National Fire Protection Association, 60 Batterymarch St., Boston 10. Single sheet pamphlet. Free.

Illustrates the various types of extinguishers for different types of fires.

Roethe, Harry, *Fires on Farms,* U. S. Department of Agriculture, Leaflet No. 44. Washington, D. C., Superintendent of Documents, Government Printing Office, 1940, 7 pp. 5¢.

Safeguard the Nation Against Fire. The National Board of Fire Underwriters, 85 John St., New York 38, 132 pp.

Safeguarding the Home Against Fire. The National Board of Fire Underwriters, 85 John St., New York 38, 1945, 96 pp. Free in limited quantities.

A fire prevention manual for school children.

Safe Use of Electrical Equipment. National Commission on Safety Education, National Education Assn., Washington 6, D. C., 1951, 36 pp. Single copy, 50¢.

Safety Thru Elementary Science. National Commission on Safety Education, National Education Assn., Washington 6, D. C., 1949, 40 pp. Single copy, 50¢.

Safe Use and Storage of Gasoline and Kerosene on the Farm, Revised edition. Farmer's Bulletin No. 1678, U. S. Department of Agriculture, Washington, D. C., Superintendent of Documents, Government Printing Office, 1945, 14 pp. 5¢.

Sandholzer, Marjorie W., *Flameproofing of Textiles,* U. S. Department of Commerce, National Bureau of Standards. Washington, D. C., U. S. Government Printing Office, 1946, 20 pp.

School Fire Drills, Pamphlet No. 103, Federal Security Agency, U. S. Office of Education. Washington, D. C., Superintendent of Documents, Government Printing Office, 1948, 20 pp. 10¢.

Selected Demonstrations for Use in Fire Safety Education. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1938, 38 pp. 35¢.
Useful for learning activities for high school pupils.

60 Ways to Prevent Fire in Your Home—In Your Business or Wherever You Are. The National Board of Fire Underwriters, 85 John St., New York 38. Single sheet folder. Single copy free.
A guide for checking the sixty different fire hazards.

Smedley, Elizabeth, *Local Fire Administration in Pennsylvania.* Harrisburg, Commonwealth of Pennsylvania, Department of Internal Affairs, 1947, 138 pp. Free.

Soil Conservation Programs, No. NER-1110-Pa. Production and Marketing Administration of the U. S. Department of Agriculture. Washington, D. C., Superintendent of Documents, Government Printing Office, 1947.

Sprague, D. C., *Manual of Demonstrations and Lessons in Teaching Farm Wiring.* State College, Department of Agricultural Engineering, The Pennsylvania State College, 44 pp.

Standards of The National Board of Fire Underwriters for the Installation, Maintenance and Use of First Aid Fire Appliances as Recommended by the National Fire Protection Association, Pamphlet No. 10. The National Board of Fire Underwriters, 85 John St., New York 38, 1947, 78 pp. Free.

Stop Fires—Save Jobs. The National Board of Fire Underwriters, 85 John St., New York 38, 15 pp. Single copy free to key personnel.
An illustrated brochure useful for learning activities in high school classes.

Suggested Guide for Safety Instruction. Primary Grades, for use in October, Upper Elementary Grades, for use in October. Washington, D. C., American Red Cross, Red Cross National Headquarters, 1948. Free to responsible persons while available.

Tested Activities for Fire Prevention Committees. Second Edition. Federation of Mutual Fire Insurance Companies, 919 North Michigan Ave., Chicago 11, 32 pp.

Trapped by Fire. How to Get Out of a Burning Building—The Price of Panic. National Fire Protection Association, 60 Batterymarch St., Boston 10. A single sheet pamphlet. Free.

Treating Spruce and Balsam Fir Christmas Trees to Reduce Fire Hazard, U. S. Department of Agriculture, Forest Service. Madison, Wis., Forest Products Laboratory, 1947.

Volunteer Fire Departments for Rural and Small Communities. The National Fire Protection Association, 60 Batterymarch St., Boston 10, 1947. 50¢.
Includes sections of National Fire Codes.

Water Systems for Fire Protection on Farms. National Fire Protection Association, 60 Batterymarch St., Boston 10, 1938. 10¢.

What Causes Destructive Fires. The National Board of Fire Underwriters, 85 John St., New York 38. 6″ x 8″ sheet. Single copies free.
Gives table of figures on known fire causes over a ten-year period as compiled by the Actuarial Bureau of The National Board.

When Fire Strikes You. National Fire Protection Association, 60 Batterymarch St., Boston 10. Free in limited quantities. A single sheet pamphlet useful to teach the hazards of fire in homes and what to do in event of fire.

Wildlife. Cornell Rural School Leaflet, Vol. 41, No. 2. Ithaca, N. Y., New York College of Agriculture, Cornell University.

Wirt, George H., *Lessons in Forest Protection.* Bulletin 35. Harrisburg, Commonwealth of Pennsylvania, Department of Forests and Waters, 1946, 43 pp. Free.

You and Forest Fires. Washington, D. C., U. S. Department of Agriculture, Forest Service, 1948. Free to responsible persons. Useful for high schools.

REFERENCES FOR CHILDREN

FIRE PREVENTION STORIES

(Complete addresses of publishers are on page 148.)

PRIMARY

Baruch, Dorothy and others, "Tommy Goes to a Fire," "What to Do About Fires," *Five in the Family* (Third Reader Level), Health and Personal Development, Curriculum Foundation Series. Scott, 1946.

Bianco, Margery and O'Donnell, Mabel, "Fire," *The Five-and-a-Half Club* (Third Reader Level), The Alice and Jerry Books. Row, 1942.

Black, Irma Simonton, *The Boy Who Didn't Believe What He Was Told.* A fire-safety story for school children through third grade. National Board of Fire Underwriters. 16 pp.

Bond, Guy L. and others, "The Fire at the Market," *Down Our Way* (Second Reader Level), Developmental Reading Series. Lyons, 1949.

Buckley, White, Adams, "Fire! Fire!" *In Town and Country,* The Road to Safety, D, enlarged and revised. American Book, 1938.

Buckley, White, Adams, "In Time of Fire," *Here and There,* The Road to Safety, E, enlarged and revised. American Book, 1938.

Coffin and Wright, editors, *Binkie and the Firemen.* Hale, 1936. 48 pp.

Coffin and Wright, editors, *Fire! Fire!* Hale, 1936. 48 pp.

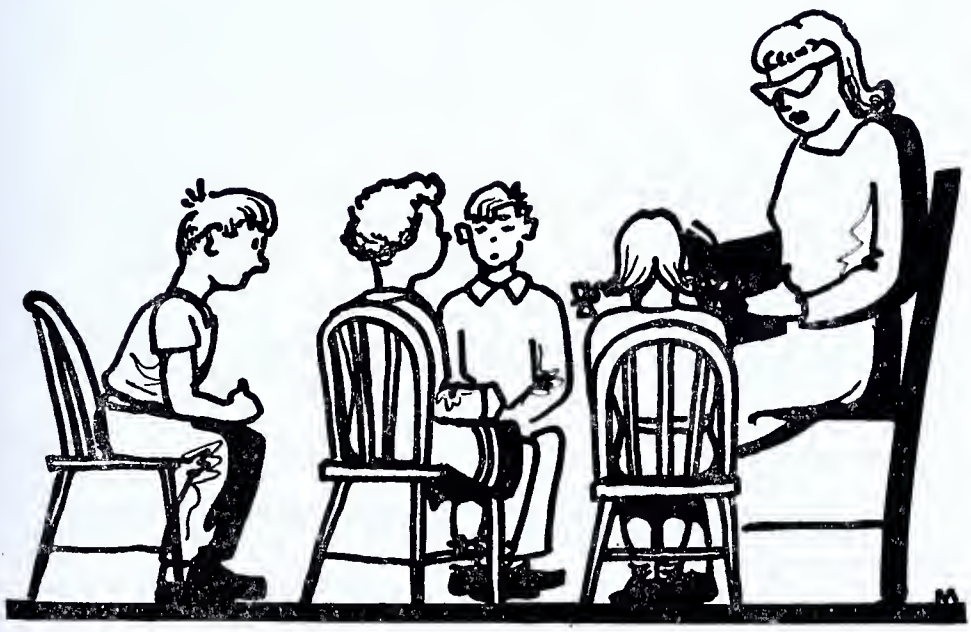
Coffin and Wright, editors, *Old Strawberry and Molly.* Hale, 1936. 48 pp.

Coffin and Wright, editors, *Tabby and the Boat Fire.* Hale, 1936. 48 pp.

Coffin and Wright, editors, *The Fireboat.* Hale, 1936. 48 pp.

Craig, Gerald S. and Daniel, Etheleen, "A Visit to the Forest," *Science through the Year* (Second Reader Level), Our World of Science. Ginn, 1946.

Craig, Gerald S. and Baldwin, Sara E., "The World Uses Electricity," *Science Every Day* (Third Grade Level), Our World of Science. Ginn, 1946.



Floherty, John J., *Fire Fighters.* Doubleday, 1935. 60 pp.
Gray, Wm. S. and Arbuthnot, May Hill, "A Pot of Fire," *More Streets and Roads,* Basic Readers (Third Reader Level), Curriculum Foundation Series. Scott, 1942.
Harris, Julia M., "At the Fire Station," *Making Visits* (Second Reader Level), The Child Development Readers. Houghton, 1939.
Hildreth, Felton, Henderson, Neighen, "The Fire in the Barn," *Along the Way* (Second Reader, Level One). Winston, 1940.
Huber, Salisbury, Gates, "Good Dog, Patches," *Rusty Wants a Dog* (Second Reader Level), Core Vocabulary Readers. Macmillan, 1943.
Johnson, Eleanor M., *Firemen.* American Education Press, 1934. 36 pp.
Johnson, Eleanor M., *Keeping our City Safe and Clean.* American Education Press, 1934. 24 pp.
Knox, Stone, Meister, Noble, "Heat," *The Wonderworld of Science,* Book Three. Scribner, 1940.
Kuh, Charlotte, *The Fireman.* Macmillan, 1937. 42 pp.
Leavell, Breckenridge, Browning, Follis, "How Kenneth Helped the Firemen," *Friends to Know,* Book Three. American Book, 1936.
Lovelace, Maud Hart, *Billy Barrett, The Fire Chief's Son,* A Firesafety Story for School Children, Primary Department through Grade School. National Board of Fire Underwriters. 8 pp.
Mason, Miriam E., "A Trap for Lightning," *A House for Ten.* Ginn, 1949.
Meredith, Cliff, *Fire!* Reynal, 1934. 63 pp.
Montgomery, Elizabeth and others, "Fire Burns," *Three Friends* (Second Grade Level), Health and Personal Development, Curriculum Foundation Series. Scott, 1947.
Montgomery, Elizabeth and Bauer, W. W., "Sally Can Help Father," *Happy Days with Our Friends* (Primer Level), Health and Personal Development, Curriculum Foundation Series. Scott, 1948.
National Board of Fire Underwriters, *Told by a Tongue of Flame.* The Board. 7 pp.
Ousley, Odille and Russell, David H., "The Flying Firemen," *Around the Corner* (Reader 2, Level 2), The Ginn Basic Readers. Ginn, 1948.
Phillips, Mary Geisler and O'Donnell, Mabel, "David and the Fire Engine," *Anything Can Happen* (Second Reader Level), The Alice and Jerry Books. Row, 1940.
Pryor, W. C., *The Fire Engine.* Harcourt, 1934. 98 pp.
Read, Helen S., *Jip and the Firemen,* Social Science Readers. Scribner, 1929. 37 pp.
Ringer, Edith and Downie, L. C., "A House on Fire," *David and Joan in City and Country,* New Citizenship Readers, Grade One. Lippincott, 1940.
Ringer, Edith and Downie, L. C., "The Children at Work and Other Fire Stories," *David and Joan All Year Round,* New Citizenship Readers, Grade Two. Lippincott, 1940.
Rosser, Angie O., *Uncle Jim, the Fire Chief.* Southern Publishing Co., 1930. 207 pp.
Sallen, Benjamin and others, "Firemen and Fire Engines," *Visits with Friends* (Second Reader Level). Lyons, 1944.
Smith, Nila Branton, "Stories about the Postman, the Policeman, and the Fireman," *In City and Country* (First Reader Level), The Unit Activity Reading Series. Silver Burdett, 1935.
Storm, Grace E., "The Fire," "The Fire House," *Friends about Us* (Second Reader Level), Guidance in Reading Series. Lyons, 1940.
Straub, J. Harold, "Biff, The Fire Dog," (Primary Level). Lyons, 1936. 89 pp., 84¢.
Western Actuarial Bureau, *Smoky's Story of Old Man Fire.* The Bureau, 1929. 8 pp.
Yoakam, Gerald and others, "The Fire," *The Laidlaw Basic Readers,* Primer. Laidlaw, 1940.

INTERMEDIATE

Baker and Baker, "Call to the Fire Lines," *Our World and Others* (Sixth Reader Level), The Curriculum Readers. Bobbs, 1938.
Beauchamp, Wilbur L. and others, "How Do We Control Fire?" "What is Happening to Our Forests?" *Discovering Our World,* Book Three, Basic Studies in Science. Scott, 1939.
Buckley, White, Adams, Silvernale, "Fires," *Around the Year,* The Road to Safety, F, enlarged and revised. American Book, 1938.

Buckley, White, Adams, Silvernale, "Fire and Flame," *On Land and Water,* The Road to Safety, G, enlarged and revised. American Book, 1938.
Buckley, White, Adams, Silvernale, "Fire Fighters," *Who Travels There,* The Road to Safety, H, enlarged and revised. American Book, 1938.
Caldwell and others, "Forests and People," Part Three, *Our Land and Our Living* (Intermediate Reading Level). Singer, 1947.
Carpenter, Bailey, Tuttle, "Forests Protect Living Things," *Adventures in Science with Doris and Billy,* Book 4, The Rainbow Series. Allyn, 1941.
Carpenter, Bailey, Smith, Tuttle, "Forests, Water and Life," *Adventures in Science with Ruth and Jim,* Book 6, The Rainbow Series. Allyn, 1943.
Carpenter, Bailey, Smith, Tuttle, "Thunder and Lightning," *Adventures in Science with Jack and Jill,* Book 5, The Rainbow Series. Allyn, 1943.
Coalsworth, Elizabeth and O'Donnell, Mabel, "Fire," *Runaway Home* (Sixth Reader Level), The Alice and Jerry Books. Row, 1942.
Craig, Gerald S. and Hill, Katherine E., "Heat Changes Things," "About Electricity," *Working with Science* (Fifth Grade Level), Our World of Science. Ginn, 1946.
Craig, Gerald S. and Hurley, Beatrice Davis, "Conservation," "Electricity and Magnetism," *Exploring in Science* (Fourth Grade Level), Our World of Science. Ginn, 1946.
Craig, Gerald S. and Hyde, Margaret O., "Electricity Works for Us," *New Ideas in Science* (Sixth Grade Level), Our World of Science. Ginn, 1946.
Curtis, Mary I., "Forest Fires," "Smoke Jumpers," *Conservation in America.* Lyons, 1947. 118 pp. 90¢.
Dowling, Ellen C. and Nofziger, Ed., *Gabby and the Forest Fires.* American Tree Association, 1947. 50 pp. 10¢.
Forest Fire, A True Story of Our Forests by Smokey, a cartoon booklet. American Forestry Association, 16 pp. 10¢, special quantity rates.
Frasier, MacCracken, Decker, McNaughton, "How Heat Affects Solids, Liquids and Gases," *How and Why Experiments* (Fifth Grade Level), The How and Why Science Books. Singer, 1947.
Frasier, George W. and others, "Magnetic and Electrical Energy," *How and Why Discoveries* (Sixth Grade Level), The How and Why Science Books. Singer, 1947.
Frasier, George W. and others, "How Electricity Works," "Storms," *The How and Why Club* (Fourth Grade Level), The How and Why Science Books, Singer, 1947.
Grady, W. E. and others, "A Tale of Timber," "Fighting Forest Fires," *New Stories of Life and Adventure* (Sixth Reader Level), Childhood Readers. Scribner, 1939.
Gray, Wm. S. and Arbuthnot, May Hill, "Smoke Jumper," "A Fireman's Bag of Tricks," *People and Progress,* Grade 6. Scott, 1943.
Harris, Albert Mason, "The Race with the Flames," "The Old Forester's Story," *Out of Doors,* New Citizenship Readers. Lippincott.
Harrison, J. M., "Fire, Heat and Expansion," *Elementary General Science,* Book I. Longmans, 1941.
Johnson, Eleanor M., "Firemen," Unit Study Book No. 103. American Education Press, 1941. 24 pp.
Knox, Stone, Meister, Wheatley, "Conservation," *The Wonderworld of Science,* Book Five. Scribner, 1941.
Knox, Stone, Meister, Wheatley, "Electricity," *The Wonderworld of Science,* Book Four. Scribner, 1941.
Knox, Stone, Meister, Wheatley, "Electricity and Its Uses," *The Wonderworld of Science,* Book Six. Scribner, 1941.
Lovelace, Maud Hart, *The Twins and Mr. Jinx,* A Firesafety Story for Students, Fourth through Seventh Grades. National Board of Fire Underwriters. 11 pp.
Lyman, Moore, Hill, Young, "Fighting a Forest Fire," "The Live Wire," *Treasury of Life and Literature,* Volume Two. Scribner, 1937.
Lyman, Moore, Hill, Young, "Fire," *Treasury of Life and Literature,* Volume Three (Sixth Reader Level). Scribner, 1937.
Lyman, Moore, Hill, Young, "Sparks from a Thunder Cloud," *Treasury of Life and Literature,* Volume One (Fourth Reader Level). Scribner, 1937.
O'Donnell, Mabel, "Horse Sense," "Young America," *Engine Whistles* (Fifth Reader Level), The Alice and Jerry Books. Row, 1942.

Olds, Elizabeth, *The Big Fire.* Houghton, 1945. 28 pp.

Shacter, Helen and Bauer, W. W., "The Old Gray House Must Go," *The Girl Next Door* (Fourth Reader Level), Health and Personal Development Series. Scott, 1948.

Spencer and Fritschler, "Guardian of the Forest," "Our Homes Catch on Fire," "Safety at Home," *Exploring New Trails* (Fifth Reader Level). Lyons, 1943.

Spencer, Paul and Fritschler, L. D., "Our Homes Catch on Fire," "Guardian of the Forest," *Exploring New Trails* (Fifth Reader Level). Lyons, 1942.

Spencer, Paul R. and Horst, Helen W., "Burns," "The Fireman at Work," *Finding New Trails* (Fourth Reader Level). Lyons, 1945.

Spencer, Paul R. and Horst, Helen W., "The Fireman at Work," "Be a Fire Fighter," "Prevent Fires," *Finding New Trails* (Fourth Reader Level). Lyons, 1942.

Theisen and Leonard, "Catching Forest Wasters," "Going after Bunched Lightning Fires," *Real Life Stories.* Macmillan, 1940.

Witty, Paul and others, "The Great Chicago Fire," *Luck and Pluck* (Fourth Reader Level), Reading for Interest. Heath, 1942.

Yoakam, Bagley, Knowlton, "Fire Fighting a Hundred Years Ago," "Fire Fighting Fifty Years Ago," "How to Prevent Fires," *Reading to Learn,* Book One (Intermediate Reading Level), Learning New Skills. Macmillan, 1938.

Yoakam, Bagley, Knowlton, "How Fire Insurance Protects Us," *Reading to Learn,* Book Two (Intermediate Reading Level), Gaining New Knowledge. Macmillan, 1938.

Yoakam, Gerald and others, "Adventures of a Fire Fighter," *From Every Land* (Sixth Reader Level), Laidlaw Basic Readers. Laidlaw, 1940.

List of Publishers with Addresses for Fire Prevention Stories Listed

Allyn and Bacon, 11 E. 36th St., New York 16, New York.
American Book Company, 88 Lexington Ave., New York 16, New York.
American Education Press, Inc., 400 S. Front St., Columbus 15, Ohio.
The American Forestry Association, 919 Seventeenth St., NW, Washington 6, D. C.
American Tree Association, 1214 Sixteenth St., NW, Washington, D. C.
Bobbs-Merrill Company, 468 Fourth Ave., New York 16, New York.
Doubleday and Company, Inc., Garden City, New York.
Ginn and Company, 72 Fifth Ave., New York 11, New York.
E. M. Hale Company, 320 S. Barstow St., Eau Claire, Wisconsin.
Harcourt, Brace & Company, Inc., 383 Madison Ave., New York 17, New York.
D. C. Heath and Company, 180 Varick St., New York 14, New York.
Houghton, Mifflin Company, 432 Fourth Ave., New York 16, New York.
Laidlaw Brothers, Inc., 221 Fourth Ave., New York 3, New York.
J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5, Pennsylvania.
Longmans, Green and Company, 55 Fifth Ave., New York 3, New York.
Lyons and Carnahan, 225 S. Main St., Wilkes-Barre, Pennsylvania.
The Macmillan Company, 60 Fifth Ave., New York 11, New York.
The National Board of Fire Underwriters, 85 John St., New York 38, New York.
Reynal & Hitchcock (Address Harcourt, Brace & Company, Inc.).
Row, Peterson and Company, 131 E. 23rd St., New York 10, New York.
Scott, Foresman and Company, 114-120 E. 23rd St., New York 10, New York.
Charles Scribner's Sons, 597-599 Fifth Ave., New York 17, New York.
Silver Burdett and Company, 45 E. 17th St., New York 3, New York.
L. W. Singer Company, 249-259 W. Erie Blvd., Syracuse, New York.
Southern Publishing Company, 2210 Pacific Ave., Dallas 1, Texas.
Western Actuarial Bureau, 222 W. Adams St., Chicago, Illinois.
John C. Winston Company, 1006-1020 Arch St., Philadelphia 7, Pennsylvania.

FIRE PREVENTION SONGS

Armitage, "The Fire Engine Bell," *Merry Music*—Singing School Series. Boston, C. C. Birchard and Company. p. 38.

Armitage, "Fireman," *Our Songs*—Singing School Series. Boston, C. C. Birchard and Company. p. 49.

Barbour and Jones, "Gallant Firemen," *Child-Land in Song and Rhythm II.* Boston, The Arthur P. Schmidt Company. p. 25.

Beattie, "The Fire," *The American Singer, Book III.* New York, American Book Co. p. 90.

Crowninshield, "The Fire Engine," *The Sing and Play Book.* Boston, Boston Music Co. p. 49.

Eldridge, H. C., *Safety Songs for Children.* Franklin, Ohio, Eldridge Entertainment House, 1939. 20 pp. 40¢.

Gartlan, "The Fire Man," *Singing As We Go.* New York, Hinds, Hayden and Eldredge, Inc. p. 29.

Gaynor, "The Fire Engine," *Songs of the Child World*—III. New York, John Church Company. p. 26.

Giddings, Earhart, and Baldwin, "The Fire Engine," *Songs of Childhood*—Music Education Series. New York, Ginn and Company. p. 134.

Glenn, Leavitt, Rebmann, and Baker, "The Fire Engine," *Listen and Sing*—World of Music Series. New York, Ginn and Company. p. 127.

Glenn, Leavitt, Rebmann, and Baker, "Firemen," *Songs of Many Lands*—World of Music Series. New York, Ginn and Company. p. 92.

Hartman, Zoe, "Firemen on Parade," *Dennison's Juvenile Songs.* Minneapolis 15, T. S. Dennison & Company. 40¢, postpaid.

McConathy, Miessner, Birge, and Bray, "The Fire," "The Fire Man," and "My Fire Engine," *The Music Hour in the Kindergarten and First Grade.* New York, Silver Burdett Co. pp. 10, 107, and 26.
McConathy, Miessner, Birge, and Bray, "The Fireman," *The Music Hour*—First Book. New York, Silver Burdett Co. p. 64.
McConathy, Morgan, Musell, Bartholomew, Bray, Miessner, and Birge, "Ring the Fire Bell," *The Music Horizons.* New York, Silver Burdett Co. p. 24.
McLaughlin and Gilchrist, "Fire Bells," *New Education Music,* Course I. New York, Ginn and Company. p. 59.
McLaughlin and Gilchrist, "The Fire Engine" (A Round), *New Education Music,* Course II. New York, Ginn and Company. p. 82.
Parker, McConathy, Birge, and Miessner, "False Alarm," *Progressive Music Series,* Book I. New York, Silver Burdett Co. p. 40.
Smith, "The Fire," *Eleanor Smith Series II.* New York, American Book Co. p. 134.
Smith, "The Fireman," *Modern Music Series,* Primer. New York, Silver Burdett Co. p. 88.

DRAMATIZATIONS IN FIRE PREVENTION

PARTIAL LIST—PLAYS, RADIO PLAYS AND SCRIPTS ANNOTATED[1]

Publishers of Dramatizations to be found on page 156.

"All Aboard the Forestry Special" by Francis Doud.*
Free, 5 pp., mimeo., 1945.
U. S. Department of Agriculture, Forest Service, Washington, D. C.
Level: Intermediate. 15 characters.
Ranger Goodsense and Sensible Sam, A Boy Scout, refuse to admit careless and thoughtless individuals to the Forestry Special on a trip through the woods. When Put-Out-Your-Fire, Save-the-Birds, Be-Sure-Your-Match-Is-Out, and Don't-Injure-Trees climb aboard, the motor truck starts on the tour.

"Careless Johnny" by Nina Walter Willis.*
40¢ per copy, 12 pp., 1932.
Willis N. Bugbee Co., Syracuse, N. Y.
Level: Intermediate. 6 characters.
In everything he does, Johnny is careless. To correct him of bad habits his teacher and his family get him to assume responsibility instead of waiting on him and cleaning up the results of his carelessness.

"Christmas Candles" by Fanny Venable Cannon.*
Rehearsal for Safety—$1.65 less 20% discount plus 8¢ postage.
E. P. Dutton and Co., New York, N. Y.
Level: Intermediate and junior high. 6 characters.
Vera and George Foster are shown by their mother and father that placing candles on Christmas trees or in the windows is a dangerous practice and that electric light bulbs, correctly wired, are safer. An incident happening in their neighbor's house brings out vividly to Vera and George the truth of their parents' explanations.

"A Christmas Day Heroine" by Sadye A. Berman.*
Plays for the Schoolroom—85¢, 136 pp., 1936.
Samuel French, New York, N. Y.
Level: Intermediate. 9 characters.
As the play opens, the children of Mrs. Saunders are gathered in the living room playing with their Christmas toys. Against Jean's wishes, her brother, Her-

[1] *Items marked with asterisk (*) have been taken by permission from* DRAMATIZATIONS IN SAFETY EDUCATION: AN ANNOTATED BIBLIOGRAPHY. *National Education Association of the U. S.; Washington, D. C., 1940, 55 pp., 25¢. All of the items in the list have been checked as far as possible for accuracy and availability.*

bert, tries to start a fire in her toy stove, and in the attempt his blouse catches fire. Freda, with presence of mind, commands Herbert to stand still, covers him quickly with a rug, and smothers the fire. Mrs. Saunders is grateful to Freda for applying what she had learned in school to an emergency situation.

"Clean-Up Follies," a fire prevention operetta by Donald Johnston.
Free to key personnel such as fire chiefs, teachers, etc., 18 pp., time 20 min.
Western Actuarial Bureau, Chicago, Ill.
Level: Junior and senior high. 16 main characters plus the choruses.

The theme is based on a city clean-up campaign. Complete dance step routines are given. The music is not printed in the text but the tunes are all familiar and easy to procure. Pictures show costumes.

"Don's Last Practical Joke" by Margaret Miller.*
Twelve Lesson Plays for Busy Teachers—50¢, 47 pp., 1937, pp. 24-29.
Northwestern Press, Minneapolis, Minn.
Level: Intermediate. 6 characters.

Don, a very mischievous lad, plays jokes on other people, thereby causing them much irritation and trouble. One day Don decides to have some fun by ringing in a false alarm. Firemen and engines arrive upon the scene but are unable to locate the fire. Meanwhile, Don's house catches fire, but it is too late for the firemen to save it because they have spent much time looking for the false fire. Don is sorry that he has played such a prank and resolves to be good henceforth.

"Fire, A Good and Bad Spirit" by Ruth Anderson.
Assembly Fun—$1.00, 115 pp., 1947, pp. 15-18.
Walter H. Baker Co., Boston 16, Mass.
Level: Intermediate and above.

The characters are largely symbolical. Cigarette, Electricity, Firecracker, Gasoline, a Narrator and a Boy. No special stage setting is required. The dialogue is very brief and is followed by a panel discussion.

"The Fire Alarm" by Lettie C. Van Derveer.*
Assembly Book for Intermediate Grades—60¢, 88 pp., 1934, pp. 5-9.
Willis N. Bugbee Co., Syracuse, N. Y., also available from Walter H. Baker Co., Boston 16, Mass.
Level: Intermediate. 8 characters.

At the sound of the fire alarm, six pupils, with the permission of their teacher, rush out to locate the fire. They return relieved that the fire was not in any of their homes, for each confesses that he has been responsible for the presence of a fire hazard in his home.

"The Fire At Bradfords" a drama of firesafety in homes.
Free, 12 pp.
The National Board of Fire Underwriters, New York 38, New York.
Level: Junior and senior high.

Mr. Durham, a real estate broker, interested in planning buildings for safety, is invited to dinner at the Bradfords. Mr. Bradford is an architect who is also a safety expert. While at dinner, the maid violates a safety rule by cleaning her gloves with gasoline in the kitchen. An explosion with near tragedy occurs. Mr. Bradford is able to extinguish the flames with his own safety appliances and later receives the commendation of the local fire chief. In the second scene, the construction of safe homes is discussed with the result that Mr. Bradford is employed by Mr. Durham as the architect to plan his new homes.

"The Fire at Warrens" a fire prevention radio script by John Speer.
Free to key personnel such as fire chiefs, teachers, etc., 12 pp.
Western Actuarial Bureau, Chicago, Ill.
Level: Junior and senior high school.

As the Warren family is getting ready to retire for the night a number of fire hazards in the home are discussed but Mr. Warren decides to wait until later to fix them. During the night a fire breaks out in the home with tragic consequences. Especially appropriate for Fire Prevention Week.

"Fire Away" a radio script by Eugenia Schor.
15¢ per copy, 10 pp., 1948.
National Commission on Safety Education of the National Education Association, Washington, D. C.
Level: Junior and senior high school. 5 characters.
The student committee is meeting to plan the assembly program when the fire truck roars by outside the window. A discussion follows concerning spontaneous ignition. Excellent for American Education Week and suitable for any other time.

"Fire! Fire!" by Dora Mary MacDonald.*
Purpose Plays for High-School Assemblies, Vol. II—$1.00, 152 pp., 1933, pp. 55-64.
Northwestern Press, Minneapolis, Minn.
Level: High school. 6 characters.
Three boys and three girls collect toys and presents for children who were so unfortunate as to have had their homes burn. They discuss the various causes of fires in specific instances, such as a hot electric iron being left on the ironing board, leaving old rags and waste in the attic or basement, using candles on Christmas trees, overloading electric currents, and poor insulation. They agree that preventing fires pays not only in money saved but also in lives.

"A Fire Prevention Stunt" by Genevieve and Elwyn Swarthout.*
The Giant Stunt Book—$1.00, 287 pp., 1938, pp. 110-11.
Paine Publishing Co., Dayton, Ohio.
Level: Intermediate. 6 characters.
Each of six students holds a particular fire hazard, such as a kerosene can, a box of matches, a bunch of newspapers, a wooden ash basket, and a bunch of waste and oily rags. In rhyme, the pupils recite verses to show how safe articles can replace hazardous ones.

"Fire Prevention Week—Pageant I" by Marion Kennedy and Katherine I. Bemis.*
Programs for Special Occasions—$1.00, 104 pp., 1929, pp. 33-34.
A. S. Barnes and Co., New York, N. Y.
Level: Primary. 8 characters.
By disposing of rubbish found in their back yards, a group of children eliminate a common cause of fire. In rhyme.

"Fire Prevention Week—Pageant II" by Marion Kennedy and Katherine I. Bemis.*
Programs for Special Occasions—$1.00, 104 pp., 1929, pp. 35-37.
A. S. Barnes and Co., New York, N. Y.
Level: Primary. 15 characters.

Boys and girls dressed as firemen recite fire-prevention rhymes in which youngsters are taught the reasons why one should not play with matches.

"The Forest Beautiful" by Lenore Hetrick.
The Giant Assembly Book—$1.00, 294 pp., 1936, pp. 245-256.
Walter H. Baker Co., Boston 16, Mass.
Level: Intermediate and above. 4 boys and 4 girls.

The action takes place in a woodsman's cabin on the side of a mountain. Apparently a group of hikers take possession of the cabin where they plan to eat their lunch. They build a fire with wood that the woodsman has stored for his own use. They also help themselves to surrounding plant life and generally violate the rules of good conduct in the woods. An old woodsman, a spirit-sort of character, appears and chides the group for their carelessness and shortly the fire the boys have built gets out of control and the hikers scarcely get away with their lives.

"Good Neighbors" by Helen Harter.
Single copies free to members of the Council, extra copies 10¢, 12 pp., mimeo.
National Safety Council, Chicago 11, Ill.
Level: Intermediate and junior high.

How a pioneer family lost their home and nearly all their possessions from fire and how their neighbors helped them to get started again.

"The Home Gremlins" by Miriam E. Oatman.
National Commission on Safety Education of the National Education Association, Washington, D. C., 1949. Free.
Level: Junior high.

Fire is included in the safety topics in this little play. The Gremlins fail to cause accidents.

"The Intruder" a firesafety play in one act.
Free, 16 pp.
The National Board of Fire Underwriters, New York 38, N. Y.
Level: Junior and senior high. 9 characters.

A group of high school students are rehearsing for a play, Shakespeare's *Romeo and Juliet,* in the Graham Home. Mrs. Graham is in the process of making doughnuts but leaves the house for a few minutes and tells her daughter Sue to turn off the iron and to watch the doughnut grease. Of course, both are forgotten with the resulting consequences. The fire company arrives. Plenty of action.

"A Landlord's Troubles" by Anna F. Kaufman.*
Little Plays about Character, Courtesy, Citizenship—75¢, 101 pp., 1931, pp. 53-58.
Eldridge Entertainment House, Franklin, Ohio.
Level: Intermediate and junior high. 14 characters.

For a month Mr. Topper, a landlord, is having difficulty in renting his apartments because the hallways, cellar, and yard—always littered with boxes, junk, and bottles—discourage prospective tenants. Upon the suggestion of another landlord, Mr. Topper, with the help of his children, makes his apartment house safe against fires. The play ends with the children repeating fire-prevention slogans in unison.

"The League of Destruction."* Free to key personnel, 12 pp.
Western Actuarial Bureau, 222 W. Adams St., Chicago, Ill.
Level: Intermediate. 8 characters.

The Secretary of Fire in the League of Destruction is given the medal of valor by Madame Destruction for outstanding work in wrecking homes and destroying lives. The secretaries of Vice, Hate, Crime, Drought, and Disease congratulate Fire. Just then Fire Prevention bursts in upon the meeting and warns the members that, with Education showing the people of the world how to cope with Fire, its hazards will soon be wiped out.

"The Little Lamp Lighter" by Merle J. Stuart. Free, mimeo., 12 pp., 1949.
National Commission on Safety Education of the National Education Association, Washington, D. C.
Level: Junior high school. 6 characters.

This little play deals with the care of kerosene lamps. The Lowe family has a profitable but near tragic experience. Excellent for use in localities where kerosene lamps are widely used.

"Never Play with Fire" by Lenore Hetrick.*
Plays with a Purpose—60¢, 129 pp., 1939, pp. 60-65.
Paine Publishing Co., Dayton, Ohio.
Level: Primary. 7 characters.

Alex, a newcomer to the neighborhood, decides to join the True-Blue Hillbillies gang rather than the Red Pirates, for the former group plays games that are safe, whereas the latter plays hazardous games. When the Pirates promise never again to play with fire, they are allowed to accompany the Hillbillies on a hike.

"One Little Match" by Sadye A. Berman.*
Plays for the Schoolroom—85¢, 136 pp., 1936, pp. 118-25.
Samuel French, New York, N. Y.
Level: Intermediate. 8 characters.

While waiting for Uncle Ted, Aunt May, and Cousin Joan to show up for Thanksgiving dinner, Father attempts to fix a gas leak in the kitchen. Little Alfred, who has a box of matches, is told by his brother to give them to him. Alfred manages to hold on to them. Suddenly a loud explosion is heard in the kitchen, but, fortunately, Alfred is unharmed.

"Our Fires" by Marietta Abell and Agnes J. Anderson.
Programs for High School Assemblies, Vol. 6, 85¢.
The Northwestern Press, Minneapolis 15, Minn.
Level: Junior and senior high school.

A program for fire prevention week in outline form. Acquainting the audience with work and equipment of the local fire department, the causes and prevention of fires, etc.

"The Rehearsal" a firesafety play in one act.
Free, 16 pp.
The National Board of Fire Underwriters, New York 38, N. Y.
Level: Senior high. 8 characters.

A group of high school students are rehearsing for a play, Christopher Marlowe's *Dr. Faustus,* in a spacious attic in the Mason home in Riverville. In the construction of scenery, gasoline is used to thin turpentine. A fire ensued. The rehearsal was later resumed with a lesson learned in safety. Much humor and opportunity for good acting.

"A Scout Makes Good" by Lambert J. Case.*
Approved Scout Plays—60¢, 96 pp., 1931, pp. 35-47.
Walter H. Baker Co., Boston, Mass.
Level: Intermediate and junior high. 9 characters.

The practical application of signaling by a group of Scouts on a hike is illustrated when, by means of relays, the fire department is notified that Mr. Black's house is afire. Art, a tenderfoot, rescues a dog and her puppies from the burning building.

"The Story of Fire."*
Plays with a Purpose—60¢, 129 pp., 1939, pp. 66-73.
Paine Publishing Co., Dayton, Ohio.
Level: Primary and elementary. 5 characters or more.

A pageant play, America and her followers, Nature, Yuletide, Childhood, Health, and others, appeal to a group of boys and girls to be careful about matches, candles, and other fire hazards. The Spirit of Fire loses his power of evil when the children promise never to start a fire.

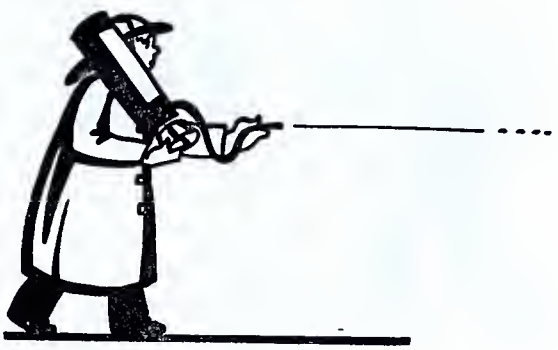
"The Unseen Guardians," a fire prevention week radio script by John Speer.
Free to key personnel such as fire chiefs, teachers, etc., 10 pp.
Western Actuarial Bureau, Chicago, Ill.
Level: Intermediate and above, 10 voices.
An excellent script for assembly use, especially important for Fire Prevention Week. Calls attention to the enormous fire loss and gives dramatic episodes in fire loss situations.

"Who's Guilty?" by Effa E. Preston.*
Plays for Special Occasions—85¢, 249 pp. 1934, pp. 79-86.
T. S. Dennison and Co., Chicago, Ill. Also available from The Northwestern Press, Minneapolis 15, Minn.
Level: Elementary. 10 characters.
An officer serves warrants on Cigarette, Match, Electricity, Rubbish, Gas, Gasoline, Bonfire, and Kerosene. Each one pleads his case and proves that if carefully used he is a gentle tool of man, but turns into an enemy when abused. The guilty finger points to Carelessness, who is arrested and locked up.

"The Wreck of the Reckless Matches" by Lenore K. Dolan.*
The Good Health Treasure Book—60¢, 136 pp., 1930, pp. 45-50.
Paine Publishing Co., Dayton, Ohio.
Level: Intermediate. 8 characters.
Seven matches tell of their experiences in burning down barns, their part in explosions, burning children, and causing fires. The eighth match recites *Don'ts* to obey in preventing fires.

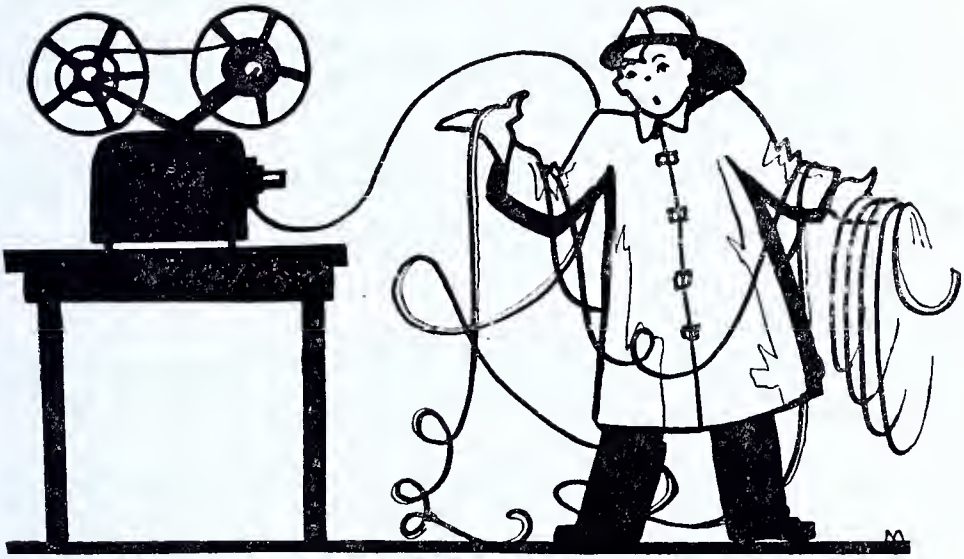
A FREE FIRE PREVENTION DEMONSTRATION

A visual demonstration presented to more than 100,000 Pennsylvanians in the past two years. Sponsored by the Sparks Club of Mutual Fire and Casualty Insurance Companies. Appropriate for high schools only. Available on request to local insurance agents.



List of Sources with Addresses for Dramatizations Listed

Walter H. Baker Company, 569 Boylston St., Boston 16, Massachusetts.
A. S. Barnes & Company, Inc., 101 Fifth Avenue, New York 3, New York.
The Willis N. Bugbee Co., 647 South Warren St., Syracuse 3, New York.
T. S. Dennison and Company, 321 Fifth Avenue, South, Minneapolis 15, Minnesota.
E. P. Dutton & Co., Inc., 300 Fourth Avenue, New York 10, New York.
Eldridge Entertainment House, Inc., Franklin, Ohio.
Samuel French, 25 West 45th St., New York 19, New York.
The National Board of Fire Underwriters, 85 John St., New York 38, New York.
National Commission on Safety Education, National Education Association, 1201 Sixteenth St., NW, Washington 6, D. C.
National Safety Council, 425 North Michigan Ave., Chicago 11, Illinois.
The Northwestern Press, 315 5th Ave., South, Minneapolis 15, Minnesota.
Paine Publishing Co., 40-44 East First St., Dayton 1, Ohio.
U. S. Department of Agriculture, Forest Service, Washington, D. C.
Western Actuarial Bureau, 222 West Adams St., Chicago, Illinois.



MOTION PICTURE FILMS (16mm)

Much of this information on films has been taken by permission of the publishers from EDUCATION FILM GUIDE, *September 1949, W. H. Wilson Company, 950-972 University Ave., New York 52, New York.* *For sources of films see page 165.*

A Modern Zeus—10 min. sound, GE 1933, loan.
Level: Intermediate and above.
Pictures the history of man's conquest of lightning.

Approved by the Underwriters (New Edition)—30 min. sound, Underwriters, loan.
May be borrowed for return transportation from National Board of Fire Underwriters Film Library.
Level: Junior high, senior high, and adult.
Almost every person in the United States is protected in his daily life from heating, electrical, and mechanical equipment by the safety standards of Underwriters' Laboratories, Inc. This film shows the rigorous testing methods used by the Laboratories to make sure that products "approved by the Underwriters" will not cause fire, injury or shock.

Are You Safe at Home?—16 min. sound, United World—Castle, 1948, $35.
Level: Intermediate and above.
Produced by the National Board of Canada for the Dominion Fire Commissioner.
Shows intelligent methods of prevention and of fighting fires. Simple home fire rules are suggested, and types of fire extinguishers suitable for the home are displayed. We see how a family that keeps cool and is well organized escapes from a burning house and manages to save the house and most of its contents.

Artificial Respiration—9 min. sound, color, Castle 1948, $43.67.
Level: Junior high and above.
Produced by the U. S. Navy.
Demonstrates artificial respiration in counteracting the effects of drowning, asphyxiation, or electrical shock. Shows the position of the victim, and the position of the person practicing artificial respiration.

A Word to the Wise—17 min. sound, National Retailers Mutual Insurance 1940, $50, loan.

Will be loaned for return postage from the Division of Farm and Home Safety Education, Department of Public Instruction, Commonwealth of Pennsylvania.

Level: Junior high and above.

Produced by the Chicago Film Laboratory.

Demonstrates the common fire hazards existing in many homes. Carelessness with cigarettes, an electric iron, and an electric heater starts fires in an average dwelling.

Before the Alarm—10 min. sound, Bur. Comm. Res. 1943, loan.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Produced by the National Board of Fire Underwriters.

This is a fast-moving story of fire prevention engineers at work in a typical American community. It shows how public officials and fire prevention experts cooperate to build a safer nation and to safeguard lives and property from fire.

Blasting Cap—15 min. sound, color, Modern 1945, loan.

Will be loaned for return postage by the Division of Farm and Home Safety Education, Department of Public Instruction, Commonwealth of Pennsylvania.

Level: Intermediate, junior high and senior high.

Sponsored by the Institute of Makers of Explosives.

Billy and his two pals find a blasting cap in the field and decide to "explode it" to scare Lieutenant Tom, Billy's older brother home on leave. A near tragedy is narrowly averted. There are scenes of dynamite in action in quarries, mines, and on the farm.

Chemistry of Combustion—9 min. sound, EPS, $30, rent $1.50.

Level: Junior high and above.

Originally produced by Urban.

A series of chemical experiments in the phenomena of oxidation and combustion—too dangerous for performances in the average laboratory.

Chemistry of Fire—46 min. sound, Castle 1945, $54.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Produced by U. S. Navy.

Demonstrates how the elements fuel, oxygen, and ignition temperature must be present in order to have fire; differentiates between flash point and ignition point of fuels; and gives two ways in which a fire may be extinguished.

City Fire Fighters—11 min. sound, Coronet 1947, $45; also color $90.

Level: Primary, intermediate, and junior high.

Collaboration: Dr. Viola Theman, Northwestern University.

Shows the importance of organized fire fighting. The lesson develops as we visit a city fire house where the fireman shows his equipment and demonstrates how he goes into action at the sound of an alarm. Emphasis is placed on fire prevention.

Crimes of Carelessness—11 min. sound, Bur. Comm. Res. 1947, loan.

Lent free for return postage to Pennsylvania requests by the Division of Farm and Home Safety Education, Department of Public Instruction, Commonwealth of Pennsylvania. Also may be borrowed from National Board of Fire Underwriters Film Library.

Level: Primary and above.

Produced by National Board of Fire Underwriters.

Depicts the appalling loss of life and property which results from preventable fires. The principal unsafe practices which cause fires are illustrated—then the safe ways of doing the same things are shown.

Dead Out—22 min. sound, color, U. S. Forest Serv. 1948, loan.
May be borrowed for return postage and insurance from Department of Forest and Waters, Office of Public Relations, Commonwealth of Pennsylvania.
Level: Intermediate and above.
Produced in cooperation with the state foresters of the Southern States.
The causes and effects of careless burning are shown as well as the simple ways by which "working" fires can be kept under control to the advantage of all concerned.

Fight that Fire—10 min. sound, Transfilm 1942, $25; also color $68.
Level: Junior high and above.
Approved by the National Fire Protection Association for wartime training.
Shows what fire is and how it can be stopped. Gives the fundamental rules of fire precaution and prevention, and explains how to use fire-fighting weapons effectively.

Fighting Large Fires in Brush and Grass—30 min. sound, color, Castle 1947, $161.12.
Level: Senior high and above.
Produced by U. S. Forest Service.
Shows how a large brush and grass fire in the West was brought under control. As the picture opens, the fire is two miles wide and four miles long; the wind is strong, the humidity low, and the temperature high. The fire boss makes his plans, divides the fire into sectors, adapts his equipment to the different terrains, orders supplies and assigns his fire-fighting crews. The film illustrates on a relief map how the fighting is adapted to each sector, and actual fire-fighting scenes show how clean-up crews, burn-out crews, and holding and mop-up crews complete the work of the machines.

Fire (General Science Series)—10 min. sound, EBF 1947, $45, rent $2.50.
Level: Intermediate and above.
Collaborator: Charles K. Arey, University of Alabama.
The film concerns itself principally with the three essentials of combustion—fuel, oxygen and a kindling temperature which depends upon the kind of fuel involved. Animated drawings illustrate these principles. Illustrates major home fire hazards, shows effective methods of extinguishing fires, and explains why water or a fire extinguishing material such as carbon tetrachloride smothers a blaze.

Fire and Police Service (Your Life Work Series)—11 min. sound, Mahnke 1947, $50, rent $1.50.
Level: Intermediate and above.
Produced by Vocational Guidance Films.
Firemen must learn to use many tools, be experts in first aid, and must know the theory of fire fighting. Their work and training are presented and explained. The many kinds of police work are also presented.

Fire Fighters—15 min. silent, Ed. Flm. 1937, $25, rent $1.00.
Level: Primary and above.
Deals with the activities of a fire department. Firemen are shown attaching hoses, setting up ladders, and applying artificial respiration to men overcome by smoke. Also shows firemen answering an alarm and extinguishing the blaze. Might be shown in general safety as well as civics classes.

Fire in Miniature—27 min. sound, color, Liberty Mutual 1949, loan.
Level: Intermediate and above.
Produced by Master Motion Pictures Co., Boston, Mass.
Portrays the thoughts of a fireman as he views his town from a moving aerial hook and ladder truck. Model homes, factories, and schools are combined with actual fire pictures to put across the film's fire-prevention message.

Fire Making—15 min. silent, EBF 1930, $24.
Level: Primary, intermediate, and junior high.
Why does a fire start? What is a flame? What becomes of substances when they burn? The answers to these and numerous other questions on the phenomenon of combustion may be found in this film.

Fireman—11 min. sound, color, guide, Tompkins 1949, $90.

Level: Primary and intermediate.

Tom Jones, a typical young fireman, leaves his family and home to report for duty at a neighborhood fire station. His activities—routine, humdrum, and daring—throughout the subsequent 24 hours provide the picture's story.

Distributor says: "This film answers actual questions posed by hundreds of primary-grade children—questions few teachers or other adults can answer. It concentrates on that splendid community helper the fireman, emphasizing his efficiency, helpfulness, and courage."

Fireman (Elementary Social Studies Series)—11 min. sound, EBF 1939, $45, rent $2.50.

May be procured from Harvard Film Service, Biological Laboratories, Cambridge, Mass.

Level: Primary, intermediate, junior high, and senior high.

Collaborators: Ernest Horn, State University of Iowa; Arthur I. Gates, Teachers College, and Celeste C. Peardon.

"Care of equipment, drills, testing of trucks, hose, ladders, and life-saving devices are shown in typical settings. A real fire affords an opportunity to observe the firemen answering the alarm and extinguishing the blaze." Indiana.

Fire Prevention—15 min. silent, EBF 1929, $24.

Level: Primary, intermediate, junior high and senior high.

Ways of fireproofing building and precautionary measures in the home.

Fire Protection—15 min. silent, EBF 1929.

Level: Primary, intermediate, junior high and senior high.

Contrasts old and modern equipment and methods of fighting fires.

Fire Safety—15 min. silent, EBF 1930, $24.

Level: Primary, intermediate, junior high and senior high.

Annual losses from fire are shown to be great. Suggests ways of preventing fires and what to do in case of fire.

Fire Weather—20 min. sound, U. S. Weather Bureau 1937, loan.

May be procured from U. S. Department of Agriculture, Office of Motion Pictures, Washington, D. C.

Level: Intermediate and above.

Produced by the U. S. Department of Agriculture.

Dealing with forest fire control in western national parks, this film illustrates the Weather Bureau's cooperation with fire fighters by giving advance warnings of critical weather conditions and by furnishing continuous reports of wind directions and velocities, atmospheric humidity, and other factors contributory to the spread of going fires.

Forest Ranger—32 min. sound, Castle 1941, $38.72.

May be borrowed from U. S. Department of Agriculture, Office of Motion Pictures, Washington, D. C.

Level: Intermediate and above.

A U.S.D.A. film.

"Explains the duties and services performed by forest rangers, and being rich in natural scenic effects, lends itself readily to a variety of curricular applications." ASFL Newsletter.

"Excellent background music. Good film for the current situation as it shows the different recreational facilities in our parks. Covers subject very thoroughly." California.

Frying Pan and the Fire—18 min. sound, color, Castle 1947, $98.33.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Also, may be borrowed for return postage and insurance from the Department of Forests and Waters, Office of Public Relations, Commonwealth of Pennsylvania.

Level: Intermediate and above.

Produced by the U. S. Forest Service.

Two girls on a picnic discover how quickly a campfire can become a forest fire. They use frying pans as makeshift shovels to clear a dirt barrier and thus encompass the blaze.

Grass and Brush Fire Fighting—28 min. sound, color, Castle 1947, $154.30.

Level: Senior high and above.

Produced by the U. S. Forest Service.

Shows how to suppress a small grass and brush fire with a small crew of volunteer but trained fire fighters. The fire has burned over five acres of cheatgrass, sagebrush, and juniper. By animation on a relief model and photographic shots of fire fighters, the film demonstrates how the fire warden sizes up the fire and outlines the job to be done, and then how each sector of the fire is brought under control . . . flames knocked down with a shovel, burn-out lines constructed, sagebrush grubbed and cleared with pulaski, spot fires detected and checked.

It's No Picnic—28 min. sound, color, Castle 1948, $148.59.

May be borrowed from the regional offices of the U. S. Forest Service in the fourteen northeastern states from Virginia north.

Also, may be borrowed for return postage and insurance from Department of Forests and Waters, Office of Public Relations, Commonwealth of Pennsylvania.

Level: Intermediate and above.

A fire is the aftermath of a pleasant Sunday picnic.

Men of Fire—10 min. sound, Bailey 1940, $36, rent $1.50.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Starting with the evolution of fire-fighting methods and equipment shows how the fireman of today is trained to serve in various phases of fire department work, such as salvage operations at fire, rescue company, inspection for fire prevention, arson investigation, public relations, etc. The firemen are shown in action.

Men of Fire—11 min. sound, Simmel 1945, $49.

Level: Intermediate and above.

Produced by Guy D. Haselton.

A brief history of fire prevention and suppression.

More Dangerous than Dynamite—11 min. sound, Simmel 1945, $49.

Will be loaned for return postage to Pennsylvania requests by the Division of Farm and Home Safety Education, Department of Public Instruction, Commonwealth of Pennsylvania.

Also, may be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Produced by Guy D. Haselton.

This film was made in cooperation of the State Fire Marshal of California with the U. S. Junior Chamber of Commerce. An excellent safety film for school use. Fires are shown starting from the use of the following everyday articles: the electric iron, lamp cord under the rug, cigar and cigarette stubs, turning light out while in bathtub, burning rubbish in yard, gas burners, using gasoline or naphtha for cleaning clothes. Shows how much better it is to send clothes to the cleaners.

No Time to Lose—5 min. sound, Aetna, loan.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Any audience.

This short, dramatic film shows three ways to turn in an alarm so that the fire department may be on the scene in the shortest possible time—on the phone, in person or at the alarm box. Interesting and instructive for both adult and juvenile groups.

One Match Can Do It—10 min. sound, Simmel 1945, $49.

Will be loaned for return postage to Pennsylvania requests by the Division of Farm and Home Safety, Department of Public Instruction, Commonwealth of Pennsylvania.

Also, may be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Produced by Guy D. Haselton.

A camper's match starts last year's dead leaves burning. The leaves ignite the brush. The fire may be beaten out in a week; but it will take a decade to get a new forest going. Before the new growth gets underway, spring thaw brings the muddy river that ran along the forest's edge to flood height. The soil is torn away by the rushing water. The river leaps the bank and covers the valley. Because of a match, a town is flooded.

Outlawing Farm Fires—32 min. sound, Nat. Assn. Mutual, 1948; black and white, $100; color, $200.

Level: Intermediate and above.

Produced by General Pictures Productions, Inc.

Actual farm scenes depict hazards which are common to most farmsteads. Present methods of eliminating such conditions by the farmer himself through constant vigilance and an interest in fire prevention. Particularly adapted for use with vocational agriculture students.

Prevent Forest Fires—The Careful Fisherman—3 min. sound, Castle 1936, $3.34.

May be borrowed from U. S. Department of Agriculture, Office of Motion Pictures, Washington, D. C.

Level: Junior high and above.

A U.S.D.A. film.

The careful fisherman in this reel shows the proper procedure for sportsmen to follow to avoid starting forest fires when in the woods.

Safety at Home—8 min. silent, EBF, 1940, $12.

Level: Primary and intermediate.

This safety film for children in the first three grades illustrates safety practices for children in the home—care of playthings; hazards of climbing on unsteady furniture; fire, and the handling of matches; protruding nails; loose rugs, etc.

Smoke Eaters (This Is America Series)—17 min. sound, RKO Radio 1948, apply for rates.

Also may be borrowed from National Board of Fire Underwriters Film Library.

Level: Intermediate and above.

Traces the development of fire-fighting techniques from the early bucket brigade days, through the days of the steam pumper and the three horsepower hook-and-ladder, up to modern times when fire-fighting equipment is of the finest. Shows the training of firemen and what happens from the time the first alarm goes into the station to the completion of the job. Every angle of fire fighting is shown and explained. A typical fire is analyzed and the actions of the firemen are explained. The detection and arrest of a firebug by the fire department plain-clothes men is pictured.

Smokejumpers—10 min. sound, color, United World-Castle, 1949, $41.50.

Level: Intermediate and above.

Produced by the U. S. Department of Agriculture.

Shows how the U. S. Forest Service has developed its own airborne squadron—"smokejumpers" (parachute fire fighters)—to combat forest fires in the remote roadless areas. Smokejumping is a fast, efficient way of getting fire fighters to where they are needed. The film covers both the glamorous aspects of smokejumping and carries a forest fire-prevention message.

Texas City Comes Back—11 min. sound, Bur. Comm. Res. 1948, loan.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Junior high and above.

Produced by Audio Productions, Inc., for National Board of Fire Underwriters.

On April 16, 1947, a shipload of ammonium nitrate fertilizer blew up at Texas City, Texas. The harbor was devastated.

This film shows how, from the first moment of disaster, America's fire insurance companies came to the aid of Texas City. The National Board of Fire Underwriters' catastrophe plan was put into operation. Adjusters were rushed to Texas City. Local agents served well. Money flowed in to speed the repairs, and the city was rebuilt.

Then Came July Fifth—10 min. sound guide, Bailey 1942, $36, rent $2.00.

Level: Primary and above.

Presents the case against unrestricted sale and use of dangerous types of fireworks and offers a safe and sane solution for celebrating Independence Day.

Then It Happened—11 min. sound, color, Castle 1948, $52.83.

May be borrowed from the regional offices of the U. S. Forest Service.

Also, may be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Also, may be borrowed for return postage and insurance from Department of Forests and Waters, Office of Public Relations, Commonwealth of Pennsylvania.

Level: Intermediate and above.

Produced by the U. S. Department of Agriculture.

The Maine forest fires of 1947 destroyed millions of dollars worth of valuable watershed, timberland, homes, and devastated scores of communities. The film shows fire destruction and points a warning to all against misuse of our forest heritage.

Trees for Tomorrow—18 min. sound, Castle, loan.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Also, may be borrowed for return postage and insurance from Department of Forests and Waters, Office of Public Relations, Commonwealth of Pennsylvania.

Level: Intermediate and above.

Sponsored by American Forest Products Industries, Inc.

Demonstrates that trees are a crop and that forest management is insurance for the future.

We Make a Fire (Elementary Physical Science Series)—10 min. sound, Films 1948, $40.

May be borrowed for return transportation from National Board of Fire Underwriters Film Library.

Level: Primary, intermediate and junior high.

Produced by Instructional Rudford.

Good fire-prevention film for younger audiences. Shows how camp fires can be made safely, but emphasizes importance of care and caution in the use of fire, if forest lands are to be saved from destruction by fire.

Worst of Farm Disasters—6 min. sound, Castle 1941, $81.70.

May be procured from U. S. Department of Agriculture, Rural Electrification Administration, Insurance and Safety Section, Washington, D. C.

Level: Junior high and above.

A U.S.D.A. film.

A rural electrification film. Danger of fire on a farm where electrification has not been completed. Installation of R.E.A. lines solves the problem.

ADDITIONAL MOTION PICTURE FILMS DEALING WITH FIRE PREVENTION—AVAILABLE FROM PENNSYLVANIA STATE GOVERNMENT AGENCIES

Department of Forests and Waters

Available through the Office of Public Relations. Cost to user is return parcel post postage and insurance of each film for $1.50. All are 16 mm.

Common Errors of the Fire Line—Black and white, sound, 1200 ft., 30 min.
Demonstrates proper and safe methods of using tools in fighting fires.

Conservation Education—Color, sound, 400 ft., 10 min.
School teachers attend summer classes at the Pennsylvania State College, learning phases of conservation through classroom study and field trips.

Fire Fighting in the South—Color, sound, 1600 ft., 40 min.
Describes the proper methods and uses of forest fire-fighting equipment.

Life Blood of the Land—Color, sound, 800 ft., 20 min.
Heavy lumbering, overgrazing and forest fire cause rapid water run-off resulting in erosion, floods, and destruction.

Management of the Fire Line—Color, silent, 1600 ft., 45 min.
Proper methods in use and direction of manpower toward efficient extinction of forest fires.

One Lick Method—Black and white, sound, 1200 ft., 30 min.
Demonstrates a method in forest fire extinction, where each member progressively moves along in developing the fire line.

Only a Bunch of Tools—Color, sound, 1200 ft., 30 min.
Story of a fire warden instructing his crew in the proper handling of forest fire-fighting equipment.

Fire in the Forest—Color, sound, 1200 ft., 30 min.
Story of factors affecting forest fire behavior. Means and methods of measuring forest fire danger and intensity.

Game Commission

Films are not sent out by mail or express. At the Harrisburg office they may be obtained on a pick-up basis. At the six district offices they are available with projection machines from the Conservation Education assistants. All are 16 mm.

Area Offices:

1 E. DuBois Ave., DuBois	331 E. Main St., Ligonier
987 Wyoming Ave., Forty Fort	14 W. First St., Oil City
327 Penn St., Huntingdon	602 Penn Ave., West Reading

A Heritage We Guard—Black and white, sound, 1600 ft., 40 min.
Beginning with the early-day trapping industry, wilderness, Indians, and other problems which confronted pioneer settlers, all leading up to the despoliation of forests, wildlife, etc., the dust storms, and closing with a portrayal of the things which can be done to improve crop and wildlife yields.

Pennsylvania's Large Game Program—Color, silent, 1200 ft., 30 min.
Dealing principally with the deer problem and its management but also containing good shots of bears at home. Big game hunting scenes.

Pioneering in Conservation Education—Color, sound, 400 ft., 10 min.
The activities of the teachers attending the Conservation Education Laboratory at State College, including trips to a coal mine, State forest, fish hatchery, game refuge, strip mine, quarries, etc.

Main Sources of Motion Picture Films Listed

Aetna Life Affiliated Companies, Public Education Department, 151 Farmington Ave., Hartford 15, Conn.

Bailey Films, Inc., 2044 N. Berendo St., Hollywood 27, Calif.

Bur. Comm. Res.—Bureau of Communications Research, Inc., 13 E. 37th St., New York 16, New York.

Castle Films Division, United World Films Inc., 1445 Park Ave., New York 29, N. Y. The contractual agency for sale of films produced by U. S. Government agencies.

Coronet Instructional Films, 65 E. South Water St., Chicago 1, Ill.; also 207 E. 37th St., New York 16, N. Y.

EBF—Encyclopaedia Britannica Films, Inc., 1150 Wilmette Ave., Wilmette, Ill.

Ed. Film—Educational Film Service, 180 N. Union St., Battle Creek, Mich.

EPS—Edited Pictures System, Inc., 165 W. 46th St., New York 19, N. Y.

Films, Inc., 330 W. 42nd St., New York 18, N. Y.

GE—General Electric Co., Distribution Section, Advertising and Sales Promotion, 1 River Road, Schenectady 5, N. Y. Sales offices in Pittsburgh and Philadelphia. See local distributors.

Liberty Mutual Fire Insurance Co., 175 Berkeley St., Boston, Mass.

Mahnke—Carl F. Mahnke Productions, 215 E. 3rd St., Des Moines 9, Iowa.

Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20, N. Y.

Nat. Assn. Mutual—National Association of Mutual Insurance Companies, 2105 N. Meridan St., Indianapolis 7, Ind.

National Retailers Mutual Insurance Co., 7450 Sheridan Road, Chicago, Ill.

RKO Radio Pictures, Inc., 1270 Sixth Ave., New York 20, N. Y. Branches in Pittsburgh and Philadelphia. See local distributors.

Simmel-Meservey, Inc., 321 S. Beverly Drive, Beverly Hills, Calif.

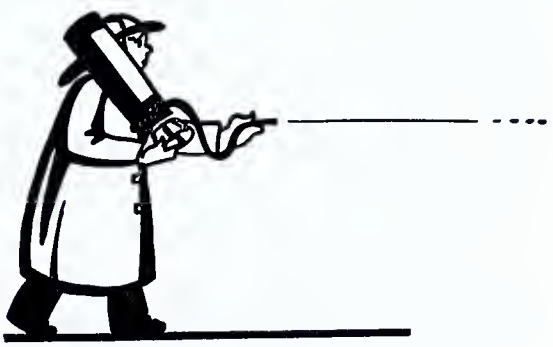
Tompkins Films, 1046 W. Edgeware Rd., Los Angeles 26, Calif.

Transfilm, Inc., 35 W. 45th St., New York 19, New York.

Underwriters—National Board of Fire Underwriters Film Library, 13 E. 37th St., New York 16, N. Y.

U. S. Weather Bureau, Department of Commerce, Washington, D. C.

United World-Castle—United World Films, Inc., Producers of Castle Films, 1445 Park Ave., New York 29, N. Y.



LOCAL PENNSYLVANIA SOURCES OF MOTION PICTURE FILMS

For local Pennsylvania dealers refer to the Educational Film Guide, published by the W. H. Wilson Company, 950-972 University Ave., New York 52, N. Y.

Bloomsburg
State Teachers College, Pennsylvania Regional Audio-Visual Library.

California
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Clarion
State Teachers College, Pennsylvania Regional Audio-Visual Library.

East Stroudsburg
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Edinboro
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Harrisburg
Commonwealth of Pennsylvania, Department of Public Instruction.
Commonwealth of Pennsylvania, Department of Forests and Waters.
Commonwealth of Pennsylvania, Game Commission.

Indiana
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Kutztown
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Lewisburg
Bucknell University, Visual Aids Library.

Lock Haven
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Mansfield
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Millersville
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Pittsburgh
Pennsylvania College for Women, PCW Film Service, Pittsburgh 6.

Shippensburg
State Teachers College, Pennsylvania Regional Audio-Visual Library.

Slippery Rock
State Teachers College, Pennsylvania Regional Audio-Visual Library.

State College
The Pennsylvania State College, Audio-Visual Aids Library (and Psychological Cinema Register).

West Chester
State Teachers College, Pennsylvania Regional Audio-Visual Library.

SILENT FILMSTRIPS

Sometimes Called Stripfilms, Slidefilms or Filmslides (35 mm., Single Frame)

This list of silent filmstrips has been checked as far as possible for accuracy and availability. Some of the annotations have been taken, by permission of the publishers, from Filmstrip Guide, *1950 edition, W. H. Wilson Co., 950-972 University Ave., New York 52, N. Y.*

Accident Behavior—35 frames, text on film with guide, 1950.

Also available as a 16 mm. film or sets of 8 x 10 photographs.

Distributed by Progressive Pictures, 6351 Thornhill Drive, Oakland, Calif. Sold for $2.50.

Level: Senior high and above.

Teaches a step-by-step procedure to follow when involved in an accident—care of the injured, hazards of fire, keeping the accident from getting worse, legal responsibilities, etc. All phases of accident behavior are shown and discussed.

Controlling Fire—45 frames, text on film with guide, 1950.
Distributed by Popular Science Publishing Co., Audio-Visual Division, 353 Fourth Ave., New York 10. Sold for $3.50.
Level: Intermediate and above.
Presents the basic causes of fires, fire prevention in the home, methods of extinguishing fires, and the operation of the fire alarm telegram.

Don't Be a Jerk (Safety Series)—50 frames, text on film with guide, 1947.
Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. Sold for $3.00.
Level: Intermediate and above.
Five simple rules for safety are explained and also the correct methods for handling electrical equipment and laboratory glassware.

Electricity (Elementary Science Series)—38 frames, text on film.
Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. Sold for $2.00.
Level: Intermediate.
Shows the various types of switches, binding posts, conductors, insulators, electrical units, Ohm's law, series and parallel circuits, as well as electrical measuring instruments.

Electricity (Elementary Science Series)—41 frames, text on film, 1949.
Distributed by Young America Films, Inc., 18 E. 41st St., New York 17. Sold for $3.50.
Level: Intermediate and junior high.
Explains the factors which affect the flow of electricity through a simple circuit.

Fire and Fuels (Foundations of Chemistry)—48 frames, text on film, 1948.
Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. Sold for $3.00.
Level: Junior and senior high.
Points out the use of fire, its importance as a friend and its destructibility as an enemy.

Fire Department—I (Social Studies Series)—42 frames, text on film, 1949.
Distributed by Stillfilm, Inc., 171 South Los Robles, Pasadena 5, Calif. Sold for $2.00.
Level: Intermediate.
Shows the daily routine of a city fireman, his work, training, recreation, and the physical training that make him a good fireman.

Fire Department—II (Social Studies Series)—36 frames, text on film, 1949.
Distributed by Stillfilm, Inc., 171 South Los Robles, Pasadena 5, Calif. Sold for $2.00.
Level: Intermediate.
Shows the procedure from the time the fire company leaves the station to go to a fire until the fire is out and the company returns to the station.

Fire Department—III (Social Studies Series)—36 frames, text on film, 1949.
Distributed by Stillfilm, Inc., 171 South Los Robles, Pasadena 5, Calif. Sold for $2.00.
Level: Intermediate.
Shows all the modern equipment of a large city fire department, how the equipment is kept ready for use at all times, and the great improvement from the old horse-drawn equipment.

Fire House (Community Helpers Series)—Number of frames not listed, text on film with guide, 1949.
Distributed by Eye Gate House, Inc., 330 W. 42nd St., New York 18. Sold for $3.95.
Level: Primary and above.
Activities around the fire house.

Firemen at Work (Community Workers Series)—150 frames, color, text on film, 1949.
Distributed by Curriculum Films, Inc., 41-47 Crescent St., Long Island City 1, New York. Sold for $3.95.
Level: Primary and above.
Shows the part of the firemen in the life of a community.

Fire Safety (Safety Series)—48 frames, text on film with guide, 1947.
Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. $3.00.
Level: Intermediate and above.
Explains some of the most common causes of fire, and the damage which follows. Emphasis put on the factor of remaining calm in case of fire, since panic is always costly.

How Man Mastered Fire (Food, Clothing, Fuel and Shelter Series)—40 frames, text on film with guide, 1947.
Distributed by Popular Science Publishing Co., Audio-Visual Division, 353 Fourth Ave., New York 10. Sold for $3.00.
Level: Primary and intermediate.
Pictures the history of man's development.

How to Build a Simple Fire (Life in the Out-of-Doors Series)—24 frames, text on film.
Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. Sold for $3.00.
Level: Junior high and above.
A Boy Scout building a fire is used as a means of pointing out the steps which must be taken in building a fire and the rules to be followed in putting it out.

In Case of Fire—45 frames.
National Safety Council, 425 N. Michigan Ave., Chicago, Ill. $2.00.
Level: Intermediate and above.
At the start, fire is compared with a two-faced person who cannot be trusted. The uses of fire to man are illustrated and suggestions are given for the proper extinguishment of camp fires, storing and cleaning accumulated rubbish, using matches, turning in an alarm, and using fire extinguishers.

Man's Use of Fire (Food, Clothing, Fuel and Shelter Series)—40 frames, text on film with guide, 1948.
Distributed by Popular Science Publishing Co., Audio-Visual Division, 353 Fourth Ave., New York 10. Sold for $3.00.
Level: Primary and intermediate.
Pictures the history of man's development.

My Father Is a Fireman (Community Living Series)—57 frames, with guide.
Distributed by Films, Inc., Instructional Division, 330 W. 42nd St., New York. Sold for $3.50.
Level: Intermediate.
The activities of an average fireman with scenes of apparatus and actual fire fighting, but with the equal emphasis upon the less spectacular "housekeeping" work of firemen. Includes the causes of fires and fire prevention.

Prevent Farm Fires—38 frames.
U.S.D.A. Extension Service in cooperation with Purdue University, 1944.
Distributed by Photo Lab., Inc., 3825 Georgia Avenue NW, Washington 11, D. C. Sold for $.60 single; $1.00 double.
Level: Intermediate and above.
A challenge to reduce the annual fire loss in the county by fireproof construction; replacements, not patches; approved wiring.

Protecting Our Forests from Fire (Studying nature in our national parks), text on film with guide, 1949.
Distributed by Eye Gate House, Inc., 330 W. 42nd St., New York 18. Sold for $3.95.
Level: Intermediate and junior high.
Fire control as shown in the official pictures taken by ranger-naturalists and by members of the National Park Service.

Safety at School (Health and Safety Series)—27 frames, color, text on film with guide, 1949.

Distributed by Eye Gate House, Inc., 330 W. 42nd St., New York 18. Sold for $3.95

Level: Intermediate.

Points stressed include: safe ways to walk in the corridors and on stairs, avoiding opening doors, how to act during a fire drill, and safe use of tools.

Safety in the Laboratory—53 frames, text on film, 1947.

Distributed by Visual Sciences, Box 599-HW, Suffern, New York. Sold for $3.00.

Level: Junior and senior high.

Illustrates the practices which make for safety in the school laboratory.

Static Electricity (Physics Series)—30 frames, text on film, 1950. Produced by Chas. T. Katz.

Distributed by Science Slides Company, 22 Oak Drive, New Hyde Park, New York. Sold for $3.00.

Level: Senior high.

Law of electrical charges, nature of charges, the electroscope and its uses, the condenser and its applications.

The Fireboat (Ships and Harbor Series)—42 frames, text on film with guide.

Produced by Key Productions.

Distributed by Young America Films, Inc., 18 E. 41st St., New York 17. Sold for $3.50.

Describes the nature and work of the fireboat in a large, busy seaport. Tells how the fireboat protects the safety of shipping and harbor facilities.

The Fireman (Community Helpers Series)—32 frames, color, text on film, 1948.

Distributed by Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14. Sold for $4.00.

Level: Primary and intermediate.

The activities of an average fireman with scenes of apparatus and actual fire fighting, but with the equal emphasis upon the less spectacular "housekeeping" work of firemen. Includes the causes of fires and fire prevention.

The Fireman (Our Community Workers Series)—80 frames, text on film.

Distributed by Encyclopaedia Brittanica Films, Inc., 1150 Wilmette Ave., Wilmette, Ill. Sold for $3.00.

Level: Primary and intermediate.

Presents a comprehensive review of typical duties performed by firemen. Shows how they take care of equipment, how they practice fighting fires and saving lives, and how they work at a real fire. Makes clear the great importance of the fireman to his community.

ADDITIONAL LIST OF FILMSTRIPS

The following references will be useful for sound filmstrips, double frame filmstrips, and additional silent filmstrips not listed in this bulletin.

Cass, Angelica W. and Stone, C. Walter, *Your Filmstrip ABC's.* Chicago 4, The Film Council of America, 57 East Jackson Blvd. 35¢.

Discusses all the whats and hows of filmstrips, from where they can be used to how to make your own. Selection, care, and handling of equipment are explained, and there is a partial list of filmstrip producers and a glossary of technical terms.

Horkheimer, Mary Foley and Diffor, John W., *Educators Guide to Free Slidefilms.* Randolph, Wisconsin, Educators Progress Service. $3.00.

Lists annotated titles of free slidefilms and supplies a subject and title index and an index of sources.

Krahn, Frederic A., *Filmstrip Guide,* 1950 Edition. New York 52, The H. W. Wilson Company, 950 University Place. Subscription $3.00 (9 monthly issues and annual volume).

Contains an alphabetical title and subject index, and a classified and annotated subject list. List of 2968 filmstrips exclusive of the supplements.

LANTERN SLIDES (3¼ x 4)

Safety in the Home—30 slides.

Level: Intermediate and above.

May be borrowed by Pennsylvania requests from Department of Public Instruction, Commonwealth of Pennsylvania for cost of transportation both ways.

This set shows home accident hazards of all types, the majority of which deal with fire and electrical safety. A manual accompanies the set.

APPENDIX

Major Legal Regulations Pertaining to Fire and Panic Protection in Pennsylvania Schools

1. Definition of a School Building

According to the Pennsylvania Regulations,[1] a school is defined as "any building which, or a portion of which, is used as a place of instruction. The school may be public or private or it may be operated in conjunction with a church or other organization."

2. Classification of School Buildings

Under building classifications of the Pennsylvania Fire and Panic Law,[2] "buildings used for educational purposes, namely, schools and colleges," belong in Class I of Section 2; and under Group 3 of Section 5 of the Pennsylvania Regulations.

3. General Requirements,[1] Group 3. Buildings, Article I

"The following general requirements shall apply to all buildings in this class, whether New Construction, or Existing Construction, unless otherwise designated. . . .

"Rule 100. *Limit of Height*

"No school buildings, public, private, or sectarian, up to and including high school grade shall exceed two (2) stories in height unless it be of fire-resistive construction. For three (3) or four (4) story buildings, the roof shall be of protected construction which shall mean that the entire roof framework shall be of steel construction. Wood planking, if used for sheathing, shall have a nominal thickness of at least two (2) inches and shall be attached by means of wood spiking pieces to the metal framework. The ceiling of the floor next below shall be constructed of metal joists with a minimum of two (2) inches of reinforced concrete slab construction and at least seven-eighths (7/8) inch gypsum or cement plaster on metal or wire lath on the underneath side, or other equivalent construction. The roof covering shall be of incombustible material. Any opening through the concrete slab shall be equipped with self-closing, fire-resistive doors.

"For buildings exceeding four (4) stories the roof shall be of fully protected construction which shall mean that all materials entering into the construction of the roof, the supporting members, and the ceiling of the floor next below, shall be of incombustible materials."

"Rule 100-A. *Boiler Room*

"There shall be adequate and sufficient exits provided from all boiler rooms, blow off and ash pits or alleys, high pressure steam-line tunnels, and all other places where there is danger of employes being trapped in confined space in case of explosion within the boiler proper or burst steam line. When the boilers are located in the basement of the building, means of egress shall consist of two (2) straight-run stairways.

"These means of egress shall be so located that there may be direct access to one of them in case of a blown boiler tube or other explosion, without passing the point where the explosion occurred or where a hazard exists due to escaping steam."

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[1] Regulations for Protection from Fire and Panic, 1947 Edition, Commonwealth of Pennsylvania, Department of Labor and Industry.

[2] Pennsylvania Fire and Panic Law of April 27, 1927, P. L. 465, as amended 1929, 1933, 1937, 1938, 1939, and 1947.

"Rule 102. *Fireproofing*

"Requirements covering fireproofing shall be according to the Regulations for Fireproofing."[1]

SECTION 5. SPECIFICATIONS

Article 1. New Construction

"Rule 3. . . *Rooms Containing Heating Equipment*

"(a) The heating plant shall be entirely enclosed in a room constructed of approved fire-resistive walls. The ceiling shall be constructed in accordance with one of the following methods: a four (4) inch concrete slab ceiling, or a combination of steel and concrete measuring four (4) inches from top to bottom, or a combination of steel joists and metal lath with cement or gypsum plaster measuring four (4) inches from top to bottom, or hollow tile construction, but in all cases the steel or metal lath shall be covered by at least one (1) inch of concrete or cement or gypsum plaster on the underneath side; except that where the operating steam pressure is not more than fifteen (15) pounds per square inch, metal lath with one (1) inch of cement or gypsum plaster may be used for ceilings and side walls. All doors giving access to this room shall be self-closing fire-resistive doors, except where the entrance is from outside the building. Tin clad doors are permitted provided such doors are tinned on the inside, the tin is double lap seamed and made without solder. Air vents may be employed, provided they lead direct to the outside of the building. Ashes removed from the furnace shall remain in this compartment until removed from the building or shall be kept in metal containers. None of the foregoing regulations shall be meant to apply to gas fired furnaces or hot water supply heaters."

Article 2. Existing Construction

"Rule 5. *Doors and Windows*

"(a) All doors giving access to or passed by a fire escape shall be fireproofed. A tin clad wooden door is acceptable providing it is tinned on the inside and tin is double lap seamed and made without solder. If glass is used it shall be wire glass with no single pane greater in size than two hundred and eighty (280) square inches.

The only exceptions to the above are that doors more than four (4) feet away from the fire escape or doors on the top floor of the building giving access to the fire escape need not be fireproofed.

"(b) All windows, passed by, under, or over a fire escape, shall be of wire glass, except that windows under one or more of the following conditions need not contain wire glass:

1. Windows passed by the fire escape where the escape is more than four (4) feet away.
2. Windows under a fire escape where the window is more than one (1) full story below the nearest part of the fire escape.
3. Windows over a fire escape where the vertical distance from the center of the window sill to the tread of the fire escape is more than five (5) feet. Nothing in Rule 5 (b) shall apply where the fire escape was erected prior to May 20, 1913."

"Rule 6. *Rooms Containing Heating Equipment*

"(a) The room containing the heating equipment shall be fireproofed as follows:

[1] Regulations for Protection from Fire and Panic, Fireproofing. Commonwealth of Pennsylvania, Department of Labor and Industry, Harrisburg. 14 pp. 1948.

1. If the building is being altered or remodeled and the heating equipment is being placed in the new or remodeled portion of the building it shall be treated as specified in the paragraph on New Construction. (Rule 3)
2. If the building is being altered or remodeled and the heating equipment remains in its original location—and in all other existing buildings where deemed necessary by the Department —the ceiling above the heating equipment shall be covered with metal lath and cement or gypsum plaster to a depth of one (1) inch, or other material of an equal fire-resistive quality may be used. The metal lath and plaster ceiling shall extend at least three (3) feet beyond the heating equipment in all directions and shall be extended to cover the ceiling above the breeching from the furnace to flue.

   Ashes removed from the furnace shall be kept in metal containers."

"Rule 7. *Additional Fireproofing*

"(a) The Department [Labor and Industry] may require smoke barriers or fire barriers or fire walls to be erected and may require fireproofing of passageways, halls, and of closets under stairs or other fireproofing not specified if in the opinion of the Department such fireproofing is necessary to the reasonable safety of the persons employed, lodged, or assembled in the building.

"(b) The Department [Labor and Industry] may require fireproofing of windows in rooms or halls in addition to stair towers to eliminate the hazard of fire from adjacent or adjoining buildings."

[See Regulations for Fireproofing, Department of Labor and Industry, for additional rules.]

"Rule 102-A. *Explosives*

"No explosives shall be stored or kept within any building enumerated in Section 2 of Act 299 of 1927 as amended.

"The term explosives shall mean and include any chemical compound or mechanical mixture that is intended for the purpose of producing an explosion; that contains any oxidizing and combustion units or other ingredients in such proportions, quantities, or packing, that an ignition by fire, by friction, by concussion or by detonation of any part of the compound or mixture, may cause such a sudden generation of highly heated gases that the resultant gaseous pressures are capable of producing destructive effects on contiguous objects or of destroying life or limb; provided that gasoline, naphtha, or similar products, permissible fireworks or small arms ammunition are not intended to be within the meaning of this rule."

4. Requirements for Exits[1]—Existing Construction, Article 7.

"Rule 112. *Means of Egress*

"(a) In all schools or colleges or other buildings used for educational purposes of more than one (1) story in height, there shall be provided at least two (2) means of egress from all floors above the first. Where, in the judgment of the Department [Labor and Industry], the present means of egress from the first floor are inadequate, additional means of egress shall be provided. No school shall be used for other than school purposes after darkness where more than fifty (50) persons are assembled unless at least two (2) means of egress are provided. This applies also to single room, one story buildings.

"(b) If in the opinion of the Department [Labor and Industry] two (2) means of egress are not sufficient to provide for the safety of those assembled in the building, additional means of egress shall be provided.

[1] See Regulations, *Means of Egress,* Rule III, Article 6—New Construction.

"(c) If additional means of egress are required from floors above the first, the additional means of egress shall, upon the approval of the Department, be either a stair tower of fire-resistive construction, or an iron fire escape erected according to specifications approved by the Department, or an internal stairs with side walls of metal lath and cement or gypsum plaster with the underneath side of the stairs treated with metal lath and cement or gypsum plaster.

"(d) If additional means of egress are required from the first floor, the means of egress shall be by doors at floor level with the necessary steps or ramps at grade.

"(e) If designed for a total building occupancy of fifty (50) or more persons the additional means of egress shall be not less than forty-eight (48) inches in width, except when the additional means of egress is a fire escape and the condition of the walls makes this impossible, in which case the width shall be determined by the Department [Labor and Industry].
If designed for a total building occupancy of less than fifty (50) persons the additional means of egress shall be not less than thirty-six (36) inches in width if the means of egress is a stair tower or an internal stairs and not less than twenty-four (24) inches in width if the means of egress is a fire escape.

"(f) The fire escape or other means of egress shall be so located that the occupants of any room need not pass another stairway or exit to reach it unless the stairway is entirely enclosed. Access to the fire escape or other means of egress shall be from a public hall or from each room, or from one room provided other rooms have direct access to it.

"(g) All means of access to the fire escape or other means of egress shall be by means of a door at floor level. Doors shall be not less than five (5) feet in width if intended as means of egress for fifty (50) or more and not less than three (3) feet wide if intended as means of egress for less than fifty (50) persons. Doors shall open outward but shall not obstruct the passageway of other exits or from floors above. All such doors shall be equipped with approved panic bolts.

"(h) All stairs and public halls shall be adequately lighted, either naturally or artificially, and lights shall be kept burning in all halls and stairs during periods of darkness or at night when the building is occupied.

"(i) At least one handrail shall be provided on all stairs less than forty-eight (48) inches in width, and for stairs forty-eight (48) inches or more in width, handrails shall be provided on both sides of stairway. Handrails shall be securely fastened to the wall and at least three (3) inches from the wall.

"(j) All fire escapes and all stairs and halls shall be kept free from obstructions and ready for instant use at all times.[1]

"(k) Counterbalanced types of fire escapes shall not be permitted except in cases where fixed terminal types cannot be used and when approved by the Department."

5. Special Requirements[2] for Auditoriums and Gymnasiums, Article 8.

"Rule 113. *Capacity*

The capacity of auditoriums or gymnasiums shall be the number of persons that can be assembled therein and shall be computed as follows:

1. If the auditorium or assembly hall contains permanent-fixed seats the capacity shall be computed as the sum of all the seats plus the number obtained by dividing the number of square feet of floor area available as standing room by three. If bleachers or benches without arms between seats are used, their capacity shall be computed on the basis of not more than one (1) person for each eighteen (18) inches in width of the bleachers or bench.

[1] It would seem reasonable to interpret that vending machines such as candy and soft drink vending machines placed in halls would constitute such obstructions and hence be a violation of this regulation.

[2] For other requirements for school buildings see Regulations.

2. If the auditorium or gymnasium does not contain permanent-fixed seats, the capacity shall be computed by allowing twelve (12) square feet of clear floor space per person in such rooms without movable seats and six (6) square feet per person in such rooms with movable seats.

"Rule 114. *Exit Signs*

Where the auditorium or gymnasium is used at night for other than school purposes there shall be at each door or exit an illuminated sign with the word EXIT thereon and in the passageway leading to an exit there shall be signs indicating the direction of the exit. Letters on signs shall be not less than five (5) inches in height. Passageways leading to exits shall be unobstructed and be properly lighted.

"Rule 115. *Obstruction of Exits*

"(a) Movable sign boards, seats, or other obstructions shall not be permitted in lobbies, foyers, passageways, or aisles which are used as means of egress from any auditorium or gymnasium.

"(b) All required means of egress shall be kept unobstructed and ready for instant use at all times. Standing in lobbies, aisles, or passageways between performances or when all seats are occupied is prohibited if such standing prevents the instant use of any of the required number of exits.

"Rule 116. *Seats*

"(a) In an auditorium or gymnasium used for other than school purposes and where permanent-fixed seats are used they shall be according to the following specifications:

"Seats shall be separated by arms and shall be of a width not less than nineteen (19) inches, measured center to center of seats, if in new construction, and eighteen (18) inches if an existing construction. Rows shall be not less than thirty (30) inches back to back. The row of seats nearest the stage or platform, or wall if no stage or platform is used, shall be so located that there will be maintained a cross aisle five (5) feet in width between such a row of seats and the stage or platform, or the wall if there is no stage or platform, when in the judgment of the Department it is necessary to secure the proper means of egress. The rear row of seats shall not be less than five (5) feet from the foyer wall. All seats shall be securely fastened to the floor. There shall be not more than six (6) seats between any seat and an aisle nor more than fourteen (14) seats between any two aisles.

"(b) Standing room will be permitted between the rear row of seats and the foyer wall provided the aisles are free and unobstructed and a clear and unobstructed passageway of not less than five (5) feet is maintained, extending from the aisles to the exits, foyer or lobby and provided a similar aisle is maintained at the rear of such standing room at all points where permitted. No movable seats or chairs shall be permitted in such standing space. Standing in aisles is prohibited.

"(c) Where permanent fixed seats are not used and where movable seats are used from time to time, they shall be securely fastened to the floor or together in an approved manner during such times as the auditorium or gymnasium is used as a place of public assemblage. Where seats are fastened together, at least fifty-six (56) seats shall be assembled. The location of, and distance between movable seats shall conform to the requirements for permanent fixed seats, paragraph (a), and the requirements for aisles shall likewise conform to the requirements for aisles of auditoriums or gymnasiums using permanent fixed seats.

"Rule 117. *Aisles*

In any auditorium used for other than school purposes, aisles having seats on both sides shall be not less than four (4) feet in width in the clear. Wall aisles shall be not less than three (3) feet six (6) inches in width in the clear.

Radiators in wall aisles shall be recessed to permit full width without obstruction in new construction. Cross aisles shall be not less than five (5) feet in width in the clear. Cross aisles shall be provided when in the judgment of the Department [Labor and Industry] they are necessary.

"Rule 118. *Stages*

"(a) Where the auditorium or gymnasium contains a stage, the stage shall be constructed, maintained, and equipped according to the following specifications:

1. Where the stage is used only for school work, or when used for commencements, athletic activities, musicales, lectures, and similar entertainments which may or may not be witnessed by the public, and which do not involve the use of scenery and curtains the stage need not be provided with a curtain. If, however, a curtain is provided, it shall be of flameproof material.

2. Where the stage is used for strictly amateur theatricals which may or may not be witnessed by the public and when the only scenery on the stage is that necessary for the immediate entertainment, the stage shall be provided with a flameproof curtain constructed and installed according to plans approved by the Department. All scenery used shall be flameproof and no highly inflammable auxiliary equipment shall be used. No flame-producing device shall be used at any time during the performance.

3. Where the stage is used for professional theatrical entertainment or for theatrical entertainment other than mentioned in paragraphs (1) and (2), and which entertainment involves the general use of movable scenery and curtains, the stage shall be constructed, maintained and equipped according to the following specifications.

The stage shall be separated from the auditorium by a proscenium wall constructed of approved fire-resistive material at least equal in fire-resistive quality to an eight (8) inch brick wall. All doors in proscenium walls shall be of the standard fire-resistive type that have successfully passed a standard one (1) hour fire and water test. All fire doors shall swing into the stage side of the proscenium wall or be of approved horizontal sliding type on stage side of wall. Proscenium wall doors shall be provided with approved self-closing devices and incombustible sills, frames, and hardware, or in lieu of frames, shall lap the sides and top of openings at least four (4) inches.

There shall be a proscenium curtain constructed and installed according to the specifications to he found in the appendix of these regulations.

"(b) There shall be provided for each side of every stage as covered by paragraph (a) 1 and 2, not less than one 2½ gallon chemical fire extinguisher of an approved type. For each side of every stage, as covered by paragraph (a) 3, there shall be provided not less than two 2½ gallon chemical extinguishers. These extinguishers shall be kept free from any obstruction and in readiness for immediate use at all times. A carbon tetrachloride or other approved type extinguisher for use on electrical fire shall be provided at the switch board ready for immediate use at all times."

6. Fire Drills. Section 1517, Pennsylvania School Code, 1949.

"(a) In all public schools where fire-escapes, appliances for the extinguishment of fires, or proper and sufficient exits in case of fire or panic, either or all, are required by law to be maintained, fire drills shall be periodically conducted, not less than one a month, by the teacher or teachers in charge, under rules and regulations to be promulgated by the county or district superintendent under whose supervision such schools are. In such fire drills the pupils and teachers shall be instructed in, and made thoroughly familiar with, the use of

the fire-escapes, appliances and exits. The drill shall include the actual use thereof, and the complete removal of the pupils and teachers, in an expeditious and orderly manner, by means of fire-escapes and exits, from the building to a place of safety on the ground outside.

"b) The city and county superintendents are hereby required to see that the provisions of this section are faithfully carried out in the schools over which they respectively have charge.

"(c) Any person who violates or fails to comply with the provisions of this section shall be guilty of a misdemeanor, and on conviction shall be sentenced to pay a fine of not less than twenty-five dollars ($25) nor more than five hundred dollars ($500), or to undergo imprisonment in the county jail for not less than ten (10) days or more than sixty (60) days, or both."

7. Insurance on Buildings. Section 774, Pennsylvania School Code, 1949.

"The board of school directors in every school district shall have full power and authority to make and enter into any contract or contracts it may deem proper with any person, firm or corporation, including any mutual fire insurance company authorized to transact business in this Commonwealth, for the purpose of insuring against loss or damage by fire, or otherwise, any or all of the school buildings or other property owned or leased by the school district.

8. Enforcement. Section 15, Pennsylvania Fire and Panic Law.[1]

"The provisions of this act shall apply to every building enumerated in this act, including buildings owned in whole or in part by the Commonwealth or any political subdivision thereof, and shall be enforced by the Secretary of Labor and Industry, by and through his authorized representatives: Provided, That nothing in this act shall be construed as affecting buildings in cities of the first class, second class, and second class A, and that duly appointed chiefs of fire departments shall be equally responsible with the Secretary of Labor and Industry for the enforcement of the provisions of this act and the regulations of the Department of Labor and Industry pertaining to the removal of obstructions to and maintenance of exits, aisles, passageways, and stairways, leading to or from exits in all buildings covered by this act, and the inspection and maintenance of emergency lighting systems, fire alarms and fire extinguishing apparatus.

"For the purpose of enforcing the provisions of this act, all the officers charged with its enforcement shall have the power to enter any of the buildings or structures enumerated in section two of this act, and no person shall hinder or delay, or interfere with any of the said officers in the performance of his duty, nor refuse information necessary to determine whether the provisions of this act, and the rules and regulations herein provided for, are or will be complied with."

9. Emergency Lighting, Sprinkler and Fire Alarm Systems. Section 3, Pennsylvania Fire and Panic Law.[1]

"Special Requirements.—There shall be installed such emergency lighting systems, sprinkler systems and fire alarm systems in such of the buildings enumerated in this act as the Department of Labor and Industry may specify and which in its judgment are necessary to give proper protection from fire and panic to those employed, assembled, lodged or housed therein. No such systems shall be installed unless they are of a type approved by the Department of Labor and Industry."

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[1] Approved emergency lighting systems are required in all auditoriums and gymnasiums. Approved fire alarm systems are required in all school buildings of more than four classrooms. See Regulations for details:

Regulations for Protection from Fire and Panic, Construction, Installation and Maintenance of Fire Alarm Systems, Commonwealth of Pennsylvania, Department of Labor and Industry, Harrisburg. 21 pp., 1950.

Regulations for Protection from Fire and Panic, Construction, Installation and Maintenance of Emergency Lighting Systems, Commonwealth of Pennsylvania, Department of Labor and Industry, Harrisburg. 29 pp., 1950.

10. Fire Drills in Schools as Required by the Pennsylvania Department of Labor and Industry.[1]

"Fire drills shall be held at least once every two months in public and private institutions, sanitariums, surgical institutes, asylums, and hospitals, and at least once a month in academies, colleges and schools. A record of all fire drills shall be kept and shall be available to representatives of the Department [Labor and Industry] on demand.....
.....
.....

"The type of fire drill conducted shall be determined by the type of building involved and its occupants. The drill shall be planned and placed into operation according to the need of the institution or establishment.....
.....

"In academies, colleges, and schools, fire drills shall include building evacuation. This is also required in institutions where the type of occupancy makes it practicable."

FIRE EXTINGUISHERS AND OTHER FIRST AID FIRE APPLIANCES

For a detailed description of types, use, maintenance, and distribution, see *Handbook of Fire Protection.*[2] Also, see NBFU Pamphlet No. 10.[3]

[1] See the Regulations for the complete text.

[2] Crosby, Fiske, and Foster. *Handbook of Fire Protection.* Tenth Edition. Boston 10: National Fire Protection Association, 60 Batterymarch Street, 1948. 1544 pp. $9.50.

[3] *NBFU Pamphlet No. 10, Standards of the National Board of Fire Underwriters for the Installation, Maintenance and Use of First Aid Fire Appliances as Recommended by the National Fire Protection Association.* The National Board of Fire Underwriters, 85 John St., New York 38, 1947. 78 pp. Free.

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